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# ANTIQUITY

A Quarterly Review of Archaeology



*Edited by O. G. S. Crawford, F.S.A.*

*and*

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VOLUME XI

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# Antiquity

## A Quarterly Review of Archaeology

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VOL. XI No. 41

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### Editorial Notes

IT is a good thing to take stock from time to time, to look back over a period of years and see what has been accomplished and how, and then to look forward in the hope of profiting by experience. We may ask, what have been the outstanding events in archaeology during the last few years? But no sooner is the question put, even in this objective form, than difficulties at once arise. What is 'outstanding'? Are not many 'outstanding' events of lesser value than others to which such an epithet is not applied? The key-word is 'value'. What standard of valuation is to be used and who is to use it, the scientist or the general public?



Every writer of appeals for money for excavations and amenities knows that the real purpose, as he conceives it, of the appeal is not usually the one to stress. Every excavator knows that tessellated pavements bring in more gate-money than a really instructive section of a rampart; and the press follows in the wake of public taste. It is almost impossible to raise money for an undertaking of real scientific value except upon some irrelevant grounds that have a popular appeal. Excavators in classical countries and in Palestine know this well. But if one wants support for an air-survey, an archaeological survey, an international map, or to excavate in some unknown land, one has to fall back on appeals to other than traditional sentiments and the results are discouraging. Purses open freely where patriotic or other traditional emotions are concerned, or when the acquisitive instinct is



## ANTIQUITY

aroused ; so these rather than the real motives are alleged. But the archaeologist distinguishes quite clearly between appeal-value and scientific worth.



The ultimate standard of value in archaeology is one of relevance to the history of man. That is our subject, divided up though it must be into compartments, to keep it manageable. That which advances our knowledge of human history is relevant, has a value proportionate to the quality or quantity of the new knowledge. Judged by this standard we assign great value to discoveries throwing light on the physical evolution of man and on the beginnings of our present declining traditional culture, and to new methods of research which further such discoveries. We attach high value, for instance, to the remains of Peking man at Choukoutien and his primitive bone tools (for which see the next number of ANTIQUITY) and to recent discoveries in Iraq (for which see the last). We attach less importance to showy finds, and more to some of these than to others. (Dr Reisner's Harvard Expedition's discovery of the tomb of Queen Hetep-heres, for example, was richer in new knowledge than the sensational tomb of Tutankhamen).



The truth is that the man of science applies one standard of values and the general public another. The general public applies the standards of the traditional civilization which moulds it from the cradle to the General News Bulletin ; but Science has created its own set of values which are not traditional but rational. Science looks at the past from the point of view of humanity ; *homo sum ; humani nihil a me alienum puto*. Science is the rock upon which the next civilization will be built. Other modern cultures are not universal ; they are split into national and class divisions, and they cannot therefore afford, even if they would, to apply universal standards. Moreover, they dislike them intensely, especially in certain countries. It may not always be so, but at present it is true to say of Science that correct judgments of value can only be passed by those who reject and ignore the standards of the majority in their own countries.



We have already mentioned parenthetically some of the most outstanding recent events. In method or technique the universality, the non-national character of archaeology is particularly plain. England

## EDITORIAL NOTES

has contributed air-photography and excavational technique (both at home and abroad); Scandinavia has, in addition to excavational technique and publication, made many brilliant additions such as geochronology, pollen-analysis, and the study of fossil dunes and old sea- and lake-levels; dendrochronology was invented in America, the home of the giant trees, but has not yet been found applicable elsewhere, for lack of material; and there are many minor improvements of technique that could be mentioned.



In our own country one of the most striking recent advances is to be seen in the better organization of archaeology. Science has been described as organized knowledge; and when it is necessary (as above) in recording advances of method to mention techniques derived from botany and geology (and of course zoology), obviously coordination is required. The isolated specialist, though useful to others, is no longer in the van of progress. The lead has been taken by those who can exploit his knowledge for the general good. Perhaps 'exploit' is not quite the right word, however, for the specialist himself, who is also a man of science, is generally most anxious to place his knowledge and skill at the disposal of others. He too is a willing cooperator in the advancement of knowledge.



An outstanding example of successful cooperation is to be seen in the recent rejuvenation of the PREHISTORIC SOCIETY. Formed before the war on a limited (East Anglian) basis, this Society now covers the whole country; and the resultant phenomenal rise in membership amply justifies the broader scope. A glance over recent issues of the Society's Proceedings shows how extensive is the field covered. One of the most valuable features are the Notes on Excavations during the preceding year, covering the whole of Great Britain and Ireland, contributed by representative correspondents. These tell us what is going on, and it is to be noted that there seems to have been more going on in England since 1934 than in the whole of the rest of the area put together, and more in Northern Ireland than in the Irish Free State. The format of the 'Proceedings' has been changed, very much for the better; two stout numbers appear each year. In the last issue the Editor's notes deserve more than a passing mention; under the title of 'Current Prehistory' are fifteen pages dealing with such subjects as the date of the separation of Britain from the Continent

## ANTIQUITY

(placed in the 'latter part of the Boreal period'), the lesson of the Köln-Lindenthal excavations (see also ANTIQUITY, 1935, ix, 89-93), the bad side of Russian archaeology, and observations on China, Malaya and Australasia.



Equally alive are the articles. Professor Childe's Presidential Address ('Proceedings', 1935, 1-15) is as stimulating and original as one would expect, and deals with a subject that will be ventilated in the next number of ANTIQUITY. Dr Grahame Clark's description of the Timber Monument at Arminghall, which he and others excavated in 1935, is not only an account of the excavation of that monument, but also a corpus of plans of cognate monuments elsewhere. Evidence of cooperation, both amongst archaeological specialists and with specialists in other studies, is evident throughout every number. A combined attack has been made by six persons on the submerged land-surface of the Essex coasts, with excellent results for the Bronze Age; while Mr Philip Ulliyott enlivens the Ice Age with a study of flat-worms—valuable allies who have hitherto remained in obscurity. Mr Grimes writes an account, which is both critical and constructive, of the Megalithic Monuments of Wales. Long barrows are represented by articles from Mr C. W. Phillips (Hon. Secretary) at Royston; Lieut.-Colonel C. D. Drew and Mr Stuart Piggott on Thickthorn Down, Dorset. (In passing we should mention Mr Phillips' masterly account in *Archaeologia* of the Giants' Hills long barrow which he excavated in 1933 and 1934). The article by Messrs King and Oakley on the Pleistocene succession in the Lower Thames Valley is a useful piece of synthesis for which we have long been waiting.



The predominant share of certain contributors is evident. That is a sign of vitality, and fortunate is the Society which can command such voluntary resources of skill and enthusiasm. The PREHISTORIC SOCIETY deserves every support; those who join it can be assured of getting good value.



*Those of our Readers who have not yet made use of the subscription form and envelope placed in the December number will no doubt do so at their earliest convenience (posting to 24 Parkend Road, Gloucester). Such consideration saves much trouble.*

# The Roman Orient and the Far East\*

by C. G. SELIGMAN

COMPARED with the civilizations of Egypt and the Near East, Chinese civilization *as we know it* is not of great age. Authentic history does not begin until about the ninth century B.C. (a commonly accepted date is 841 B.C.), nor have we archaeological finds that we can reasonably date prior to the thirteenth or fourteenth century B.C., though the beauty and mature style of the earliest known bronzes indicates a history of at least hundreds of years before this.

Figure 1 illustrates the time-relations of China and the Near East. In spite of its magnificent bronzes and graven bones, we know little of the Shang-Yin dynasty, which in date comes near to coinciding with the 18th dynasty of Egypt, while the Shang-Yin script is still somewhat primitive, indicating perhaps a period of no more than a few hundred years from an unknown pictographic origin.

I must add that the above chronology applies only to northern China, where Chinese civilization arose, indeed it did not reach south of the Yangtze until a few centuries B.C. The civilization of Japan is even younger, and is now generally accepted as not more than some 2000 years old. Thus the earliest contacts between West and East were between the Roman Orient and China.

In order to have more space to discuss historic contacts—extending over something more than 1000 years (between 200 B.C. and A.D. 900)—I shall deal very briefly with prehistoric contacts and refer only to the socketed celt. This highly specialized form of axe is one of the most characteristic implements of the Late Bronze Age (*c.* 1300–900 B.C.) of central and eastern Europe.<sup>1</sup> Using geological terminology, we may look upon it as the type-fossil of its age and zone of distribution. It is found over the whole of northwestern, central, and especially northeastern

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\* The Lloyd-Roberts lecture for the year 1935, delivered before the Royal College of Physicians.

<sup>1</sup> Déchelette, *Manuel d'Archéologie* (Paris, 1910), II, 106. In eastern Russia the date given by G. von Merhart, *Bronzezeit am Yenissei* (Vienna, 1926), p. 16, is from 1000 to 400 B.C.

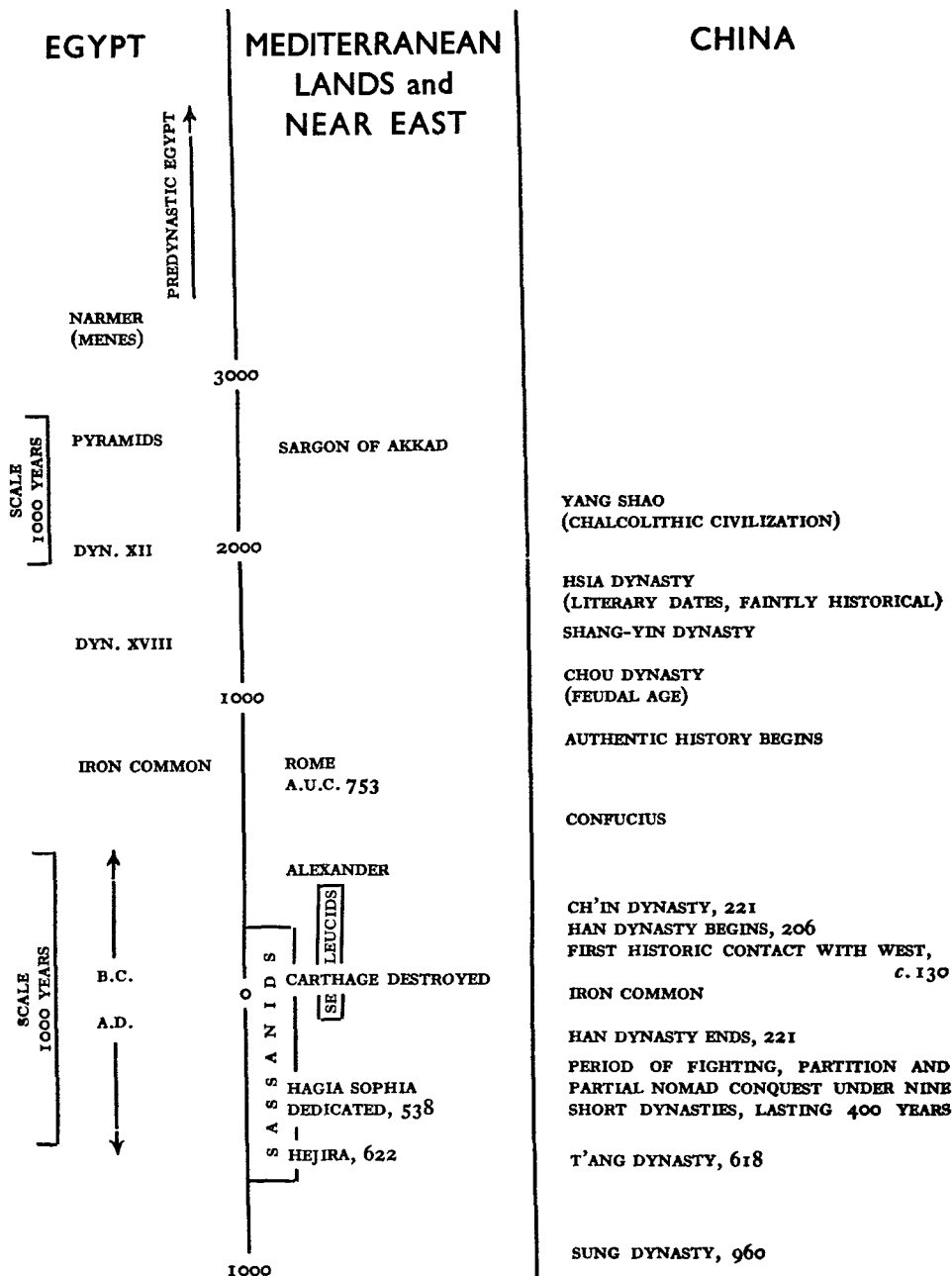


FIG. 1. TIME CHART

## THE ROMAN ORIENT AND THE FAR EAST

Europe ; it occurs in Italy, but not in Greece, and is absent from Africa ; no specimen has ever been recovered from an Egyptian tomb, nor does it occur in Asia Minor, Persia, or India. It probably reached China some five or six hundred years B.C., and, as suggested to me by Professor Minns, its presence there may be associated with events in the far Northwest which started the movements of the Scyths. The socketed celt passed along no definite or organized trade route—there is good

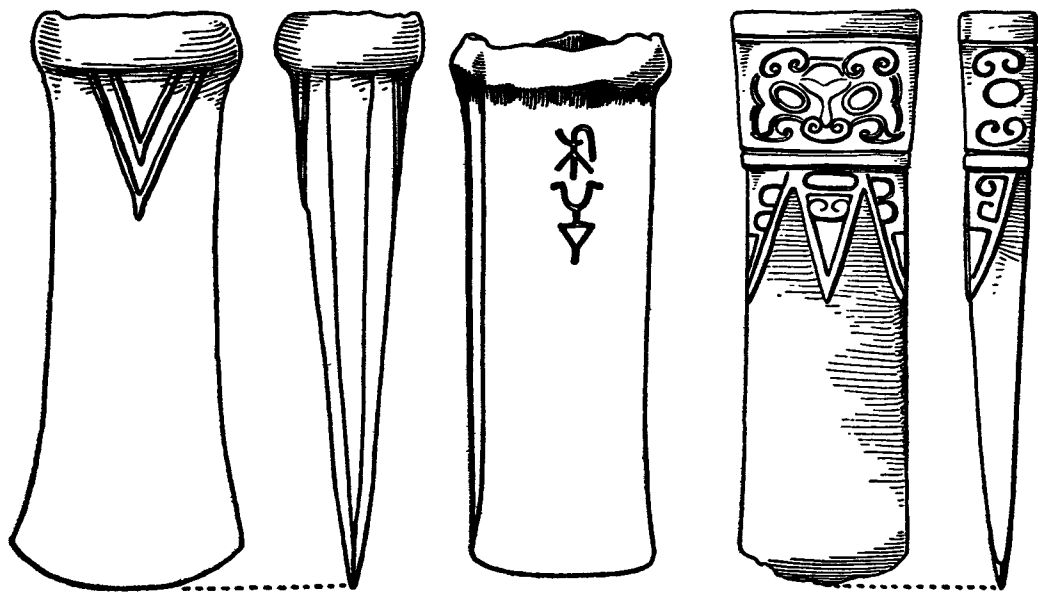


FIG. 2. SOCKETED CELTS

historical evidence to show that the silk route was not organized in its entirety until the second century B.C.—but we may picture it as borne eastward from southern Russia on a wide front across the Urals, specimens passing from hand to hand among the pastoral nomads of Siberia, until here and there, as at Minusinsk, a metallurgical centre came into existence, the manufactured products being carried far and wide north and east of the great mountain ranges of Central Asia.<sup>2</sup>

<sup>2</sup> I have discussed the passage of the socketed celt from Europe to China in *The Journal of the Royal Anthropological Institute*, I, 1920, and have suggested that the European bird-chariot of the Late Bronze Age passed with the socketed celt to China, where it gave rise to the 'dove-chariot'.

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Figure 2 represents three socketed celts. The one on the left is from Hungary and that in the centre (both in the British Museum) from China, as is that on the right. The two characters on the central specimen have not been read.

From these early contacts with Siberia and the West, we turn to that great track, nearly 5000 miles long, which, crossing mountain, steppe, and desert, constituted the highway along which Ariadne's silken thread joined the farthest East with Antioch, the most important city of the Roman Orient. (Map, FIG. 3).

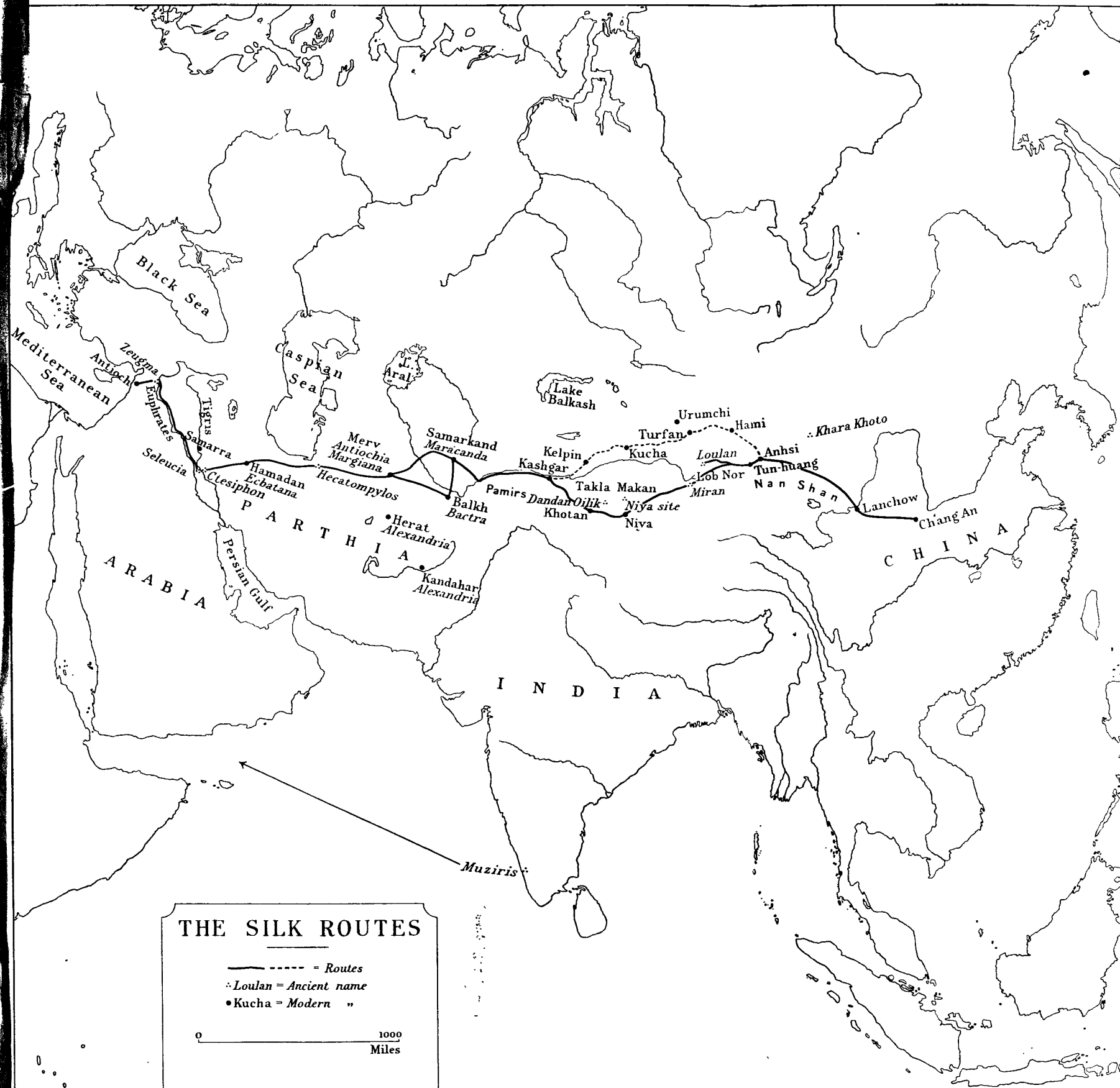
This route was first organized throughout its length in the second century B.C., but long before this lapis lazuli was reaching Ur, and even predynastic Egypt (*i.e.* 3000 B.C. and earlier). There can be no doubt that this rare mineral was mined in eastern Afghanistan, and reached Mesopotamia and Egypt, passing, as we may infer, over what was later to be the organized western third of the trade route.<sup>3</sup> Besides this, commonsense indicates that from early times hillmen and dwellers on the plains must have exchanged goods along its course, and pastoral nomads have raided and traded with the sedentaries. But it was not until China's discovery of the West that a highway which was to join Pacific and Atlantic was brought into being and organized to constitute a single whole, as definitely intended for the far movement of goods and men as is its modern successor, the Trans-Siberian Railway.

It must, however, be remembered that while the silk route across Asia is of special interest on account of the discoveries by Stein and others that have been made along its course, the use of the monsoons from the first century A.D. as a means of direct passage from the Red Sea to India was of even greater economic importance. Rome's trade with India was always greater than with the Far East; part of the silk she received was brought by sea in ships which picked up their wares in ports as far east as Tongking and Burma, as well as in the nearer ports of western India such as Muziris (the modern Cranganore).<sup>4</sup> It is significant that no hoards of Roman coins have been found in China as they have in India.

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<sup>3</sup> J. W. Gregory, *The Story of the Road* (1931), pp. 33-4; also A. Lucas, *Ancient Egyptian Materials and Industries* (1934), pp. 347, 348.

<sup>4</sup> The Indian trade, and the sea-borne trade from the Far East which travelled up the Red Sea, is discussed at length in an excellent work by E. H. Warmington entitled *The Commerce between the Roman Empire and India* (Cambridge, 1928).



## THE SILK ROUTES

- Routes
- Loulan = Ancient name
- Kucha = Modern "

0 1000 Miles





## THE ROMAN ORIENT AND THE FAR EAST

The various stages of the highway have been often described, indeed the route was mapped with amazing accuracy—considering the then state of geographical studies—in a work dedicated to Napoleon<sup>5</sup> by the learned Joseph Hager of Pavia University, who pictures the actual arrival of a Greek caravan at Sianfu, while within the last few years Mr G. F. Hudson has given an excellent survey in his important work, *Europe and China*. In what follows I have drawn largely on his account, but have considered it convenient to divide the highway into three main sections—eastern, middle and western—rather than to consider it in four sections depending on political factors, as he does.

The eastern section, which may be regarded as starting either at Ch'ang An (the Han capital) or at Lanchow in western Kansu, *i.e.* the extreme northwest of China, passes south of the westernmost extension of the Great Wall but north of the Nanshan range, westward across Sinkiang (Chinese Turkestan), skirting the Tarim Desert either north or south to reach Kashgar (Issedon Scythica), the gate of the Pamirs. Kashgar is some 1500 miles from Lanchow, and Turfan, the region of Stein's great discoveries, lies roughly halfway between the two cities.

The middle section crosses the Pamirs to reach Merv (Antiochia Margiana) by alternate routes, *via* Samarkand (Marakanda) or Balkh (Bactra).

From Merv the western section ran west and south across northern Iran to Hecatompylos and Hamadan (Ecbatana) to Seleucia-Ctesiphon just below the modern Baghdad, crossing the Euphrates at Zeugma where there was a Roman legionary camp, and thence to Antioch, whence the goods were distributed through the Empire.

This is no place to discuss the ethnology of the peoples along the trade route, though variation in cultural habit must necessarily have greatly influenced commerce along the highway. West of the Pamirs the inhabitants may in a general way be called Iranian; east of this it would perhaps be natural to expect a Mongol or at least predominantly Mongoloid population, but this is not so. The careful analysis by Mr T. A. Joyce of the measurements and photographs brought back by Stein indicates that east of the Pamirs the ethnic type is predominantly Alpine, with considerable Turki admixture and traces of

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<sup>5</sup> *Description des Médailles Chinoises du Cabines Impérial de France, précédée d'un essai de Numismatique Chinoise, avec des éclaircissemens sur le commerce des Grecs avec la Chine . . .*, Paris, an XIII=1805.

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Afghan, definitely not Mongol.<sup>6</sup> This may to some extent account for the hold that various items of western thought and habit achieved along the trade route, though too much can be made of the reputed Chinese unwillingness to adopt foreign ideas and practices; for, as noted later, the T'ang period—perhaps that of China's greatest brilliance—was marked by the influx and ready acceptance of foreigners and of foreign (Western and Indian) ideas.

Although there were many factors that tended to the early utilization of the silk route by the Chinese and emphasized their determination to keep it open, it cannot be too strongly stressed that it was neither desire for geographical knowledge nor love of conquest or of gain that dictated China's exploration of the West. It was in the first place due to sheer military necessity, the same need that led to the building of the Great Wall in order to counter the attacks of the barbarians of the North. These were the Hsiung Nu nomads, a Turki-speaking stock, identified with the Huns who invaded Europe a few centuries later. Under the Emperor Wu (141–87 B.C.) the struggle, waged intermittently for a couple of centuries, became a desperate contest, into which was thrown the full strength of the Empire. The hope of finding assistance in the West and so outflanking the Hsiung Nu was the primary purpose of that western journey upon which Wu sent his general, Chang Ch'ien, thereafter maintaining regular touch with Iranian lands.

Hand in hand with the determination to repulse the Hsiung Nu, went the Chinese desire for a supply of those fine Iranian horses which in China were called 'blood-sweating horses', fabled to be the offspring of a heavenly steed, for it was at this time that the Chinese, in response to Hsiung Nu attacks from the North, were developing a new technique of warfare in which cavalry played the preponderant part. The fodder of these noble beasts was alfalfa (*Medicago sativa*), and Chang Ch'ien, being a man of judgment, not only brought back the horses but also alfalfa seeds, leading to the rapid diffusion of the plant through northern China. The best horses appear to have come from Ferghana, now the eastern portion of Russian Turkestan, where alfalfa still yields four or five crops a year and is cultivated up to a height of 5000 feet.<sup>7</sup>

Another gift brought by Chang Ch'ien from the West was the grape used in Ferghana to make wine; the vine was, however, cultivated

<sup>6</sup> T. A. Joyce, 'On the Physical Anthropology of the Oases of Khotan and Keriya', *Journ. Roy. Anthropol. Inst.*, 1903, xxxiii; and 'Notes on the Physical Anthropology of Chinese Turkestan and the Pamirs', *op. cit.*, 1912, xlii.

<sup>7</sup> B. Laufer, *Sino-Iranica* (Chicago, 1919), p. 210.

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for centuries in its new home before the Chinese made wine from it, first apparently in the seventh century.<sup>8</sup>

It was Chang Ch'ien's quest for the 'blood-sweating' horses that established the first contacts between China and the Mediterranean world, for the Ta Yuan, the owners of the coveted horses, were the inhabitants of Sogdiana (between Oxus and Jaxartes), while Ta Hsia, the country newly settled by the Ta Yueh Chi, was Bactria, both occupying the furthest extremity of the great Bactrian-Sogdian satrapy of Alexander's Empire. Although at this time the Seleucids had lost their outlying possessions, especially in the East,<sup>9</sup> even the remotest territories had been so thoroughly permeated by Hellenistic influence that they retained something of Hellenism long after this period, though exposed to the enmity of the rising Parthian Empire.<sup>10</sup>

Chang Ch'ien's report has been preserved, perhaps in his own words. Mr Fitzgerald's translation runs as follows:—

'Ta Yüan [Kokand, Sogdiana], the people are sedentary [not nomads] and cultivate the soil. They have many superb horses, which sweat blood when they perspire. There are cities, houses and mansions as in China. To the northeast is the country of the Wu Sun [the Ili Valley], to the east is Yü T'ien [Kashgaria]. West of Yü T'ien the rivers flow westward into the Western Sea [the Caspian and Aral, Chang Ch'ien did not distinguish between the two]. From Yü T'ien eastward the rivers flow to the east into the salt swamps [the Tarim river system]. From these swamps the waters flow underground until they reappear as the source of the Yellow River. From the salt swamp to Ch'ang An, the distance is 5,000 Li. The Right horde of Hsiung Nu live between the salt swamps and the Great Wall of Lung Hsi [Kansu]. The Wu Sun [Khirgiz], K'ang Chu, and Yen Ts'ai, who are northwest of the K'ang Chu, and Ta Yüeh Chi, are nomads with customs similar to the Hsiung Nu. Ta Hsia [Bactria] is southwest of Ta Yüan and has similar customs. When your servant was in Ta Hsia he saw large bamboos and cloth of Shu [Szechuan]. When he asked the people of Ta Hsia how they obtained these things they told him that their merchants bought them in Shên Tu [Sind, India], which is a country several hundred li southeast of Ta Hsia, and is a sedentary nation, like Ta Hsia. Both Ta Hsia and Ta Yüan are tributary to An Hsi [Parthia, so called from the

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<sup>8</sup> Laufer, *op. cit.*, pp. 221 *et seq.*

<sup>9</sup> In 255 B.C. or thereabouts, Bactria revolted under Diodotus and gradually became independent, Diodotus II becoming king some time before 227 (*Cambridge Ancient History*, VII, 719, 720).

<sup>10</sup> The Parthians dated their era from the year 247 B.C. (*loc. cit.*). In order to emphasize the high degree in which Hellenistic influence was present in the Satrapy it is worth remembering that both Herat and Kandahar when founded bore the name of Alexandria. I may also refer to a passage by Rostovtzeff bearing on this point (*Cambridge Ancient History*, VII, 157-8).

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dynasty of Arsaces]. So far as your servant could judge Ta Hsia is 12,000 li [4,000 miles] from China. As it is northeast of Shên Tu, this kingdom cannot be so far from China'.<sup>11</sup>

Distances are exaggerated (the *li* is a third of a mile) and the source of the Yellow River incorrectly stated, but apart from these errors the report is a plain statement of fact. Chang Ch'ien had, however, so thoroughly experienced in his own person the difficulties of the northern route that he persuaded the Emperor to seek to approach the West overland *via* India, a reasonable enough suggestion at a time when the extreme difficulty of the country between Yunnan and Burmah was unknown; for even at the present day the deep gorges of the Mekong and Salween rivers make this one of the most inaccessible parts of the earth's surface. When it was realized that this route was impossible, interest once more centred on the northern route, and several embassies reached Ta Yüan. For a long time the ruler of this state resolutely refused to hand over any of his celebrated horses, and little progress was made until one Chinese envoy seized some of the best horses and with them set out for China, only to be ambushed by the Yüan, who killed the Chinese and recovered the horses. An attempt to revenge this insult resulted in the defeat of a Chinese army, and it was not until a further army was despatched that an agreed peace was made (102 B.C.), one of the terms being that the Chinese received several of the finest horses of Ta Yüan and a large number of inferior quality.

Some years after the death of the Emperor Wu there came a split in the ranks of the Hsiung Nu, whose northern and southern hordes quarrelled and so weakened each other that the southern leader did homage at Ch'ang An. Chinese vigilance in the west relaxed, and war broke out again during the reign of Han Ming Ti (A.D. 58-77), who was forced to realize that Turkestan must again be brought under Chinese influence. In A.D. 73 Pan Chao, a really great general and administrator, began his career in Turkestan, though it was not until A.D. 77 that he was given a free hand. His policy was to use native levies of what we should now call 'friendlies', with a stiffening of experienced Chinese officers and soldiers:—

'For the next seventeen years Pan Chao carried out this plan with unbroken success. One by one the kings of the Turkestan oases were reduced to obedience, until the whole Tarim Valley was under the peaceful rule of the Chinese viceroy. In A.D. 97, after reducing the last contumacious prince, Pan Chao crossed the T'ien Shan Mountains, and with an army of 70,000 men advanced unopposed to the shores

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<sup>11</sup> C. P. Fitzgerald, *China: a cultural History* (1935), pp. 178-9.

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of the Caspian Sea. Never before, and never since, has a Chinese army encamped almost on the frontiers of Europe. The whole stretch of country between the T'ien Shan and the Caspian submitted to the Chinese without fighting. More than fifty "kings" acknowledged Chinese overlordship and sent their heirs as hostages to Lo Yang'.<sup>12</sup>

East to West the highway essentially carried silk, and to a much smaller extent furs. The quantity of silk carried was very large; Hudson, referring to the age of the Antonines, *i.e.* the middle of the second century A.D. writes—no doubt with some little exaggeration—of silken fabrics being 'well nigh as familiar in Londinium as in Lo-yang'.<sup>13</sup> We have little knowledge of the goods carried eastwards in exchange; we do not hear of any particular product of the Near East being exported in large quantities, and what records we have suggest that the Roman Empire, at any rate in the early centuries A.D., in the main paid for its silk in gold. A discovery by Stein enables us to appreciate how thoroughly the trade was organized on the Chinese side. On his 1918 expedition he found two strips of undyed cream-coloured silk in one of the refuse-heaps adjoining a post on the old Chinese *limes* west of Tun-huang. The silk could be dated by other objects in the heap to between A.D. 67 and 137. Of this happy find Stein writes that one strip 'bears the ink impression of a Chinese seal, not yet deciphered, and by the selvages retained at both ends is shown to have come from a piece or roll of silk which had a width of about 19.7 inches or 50 centimetres'. The other strip, 12½ inches long and incomplete at one end, bears a Chinese inscription read by M. Chavannes . . . 'A roll of silk from K'ang-fu in the kingdom of Jên-ch'êng; width 2 feet and 2 inches; length 40 feet; weight 25 ounces; value 618 pieces of money'.<sup>14</sup>

Here then on a roll of silk of middle or late Han times prepared for export we have precise indications of its origin, dimensions, weight, and price, while exploration at Loulan provided further evidence that a width of about 50 cm. was a standard export size.<sup>15</sup>

Yet in spite of the regular import, which went on for centuries, it is difficult to quote a single example of Chinese silk discovered in

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<sup>12</sup> Fitzgerald, *op. cit.*, p. 191.

<sup>13</sup> G. F. Hudson, *Europe and China* (1931), p. 91.

<sup>14</sup> Aurel Stein, 'Central Asian Relics of China's Ancient Silk Trade', *Asia Major-Hirth Anniversary Volume* (1923), p. 368. See also *Serindia* (1921), pp. 373, 374.

<sup>15</sup> Stein, *Serindia*, *loc. cit.*, and pl. xxxvii.

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Europe or the Near East.<sup>16</sup> The magnificent early medieval silken textiles that we find in church and cathedral treasuries are not of the Far East but have been woven in Roman or in Persian lands. In the latter, weaving attained an intense activity, indicating access to large quantities of raw silk. Though it was not until the sixth century A.D. that the eggs of the silk moth (*Bombyx mori*) were brought to Byzantium, in Persia the silk-weaving industry appears to have been in a flourishing state in the fourth century.<sup>17</sup> Once silk became common, fabrics bearing typical Sassanian designs were exported eastwards in considerable bulk. It is only necessary to look at the plates in Stein's *Serindia*, portraying silks discovered in Chinese Turkestan, to be convinced of this; indeed they became so popular that the Chinese produced figured silks in typical Sassanian style. The most striking evidence for this is the celebrated 'hunter' silk of the seventh-eighth century from the treasure of the Horiuji Monastery at Nara in Japan (FIG. 7). The composition is typically Persian, but the fabric was woven in China and seals with Chinese characters are seen on the hindquarters of the horses, in place of the Sassanian star.<sup>18</sup> From Tun-huang Stein has figured a number of silks of great beauty, showing confronted animals in Sassanian style but with Chinese modifications. Two head-pieces for banners, figured in *Serindia* (pl. CXIV), constitute particularly instructive examples of the adaptation of a western textile motif by Chinese hands; this silk is definitely hybrid, containing both obvious Sassanian and Chinese motifs. The design is composed of large circular medallions separated from each other by lozenge-shaped masses of elaborate foliage which almost fill the background. The outer part of

<sup>16</sup> This is perhaps scarcely true at the present day, though it was so a couple of years ago. A very few pieces of silk judged to be of Chinese weave have been discovered in the West; work recently carried out at Palmyra—the great caravan town northeast of Damascus on the northern edge of the Syrian and Arabian desert—appears to have produced some examples (R. Pfister, *Textiles de Palmyra*, Paris, 1934), and it has recently been suggested that a piece of fifth century silk derived from a Rhine cathedral and now in Berlin may have been woven in China (V. Sylvan, 'Eine Chinesische Seide mit spätgriechischen Muster aus dem 5. bis 6. Jahrhundert', *Ostasiatische Zeitschrift*, 1935, N.S. XI, 22-27).

<sup>17</sup> O. M. Dalton, *Byzantine Art and Archaeology* (1911), p. 584.

<sup>18</sup> The 'hunter' type is one of those popular Persian designs in which a mounted hero is shooting wild beasts, 'the whole framed in a medallion and repeated over the surface, the medallions being interlaced or connected by small tangent circles, while the interspaces are filled with formal foliage. The huntsman is usually duplicated so that the composition is symmetrical, the two figures being usually back to back, but turning inwards to release the arrow'. (O. M. Dalton, *op. cit.*, pp. 590-91).

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the medallions is occupied by a double circular border with patterns of spaced elliptical rosettes outside and quatrefoils inside. All this is distinctly Sassanian in type, but instead of the interior of the medallion being taken up by confronted animals it is occupied by four pairs of geese, quite naturalistic in treatment, disposed round a central somewhat stylized floral element. The geese are Chinese in treatment, so much so indeed that they immediately recalled to me the birds inlaid on one of the most beautiful of the lacquer boxes in the Shōsō-in. This silk was probably woven in China proper.

Besides the heavy export of gold already alluded to, and in spite of the high rate of destruction which the lapse of two thousand years entails, we have definite evidence in specimens surviving to our own time of the export from the Roman Orient of at least one kind of luxury article, namely glass. Apart from beads, concerning which I shall have more to say later, we can recognise nearly a dozen pieces of early 'Mediterranean'<sup>19</sup> glass still existing in Korea, China, and Japan, and Stein found many fragments of glass (apparently Roman) during his excavations. Realizing when on a visit to the Far East a few years ago that glass might constitute an interesting feature of the incoming trade from the West, I took the opportunity of noting all the specimens of western glass that I was able to see, and also made enquiries as to the occurrence of glass beads and pendants and other small objects believed by the Chinese to be of considerable age. The results were sufficiently encouraging to lead to further study, and with the assistance of a number of kind friends—all specialists in some aspect of the subject, whether in archaeology or chemistry—it has been possible to reach certain interesting conclusions.<sup>20</sup>

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<sup>19</sup> We know nothing of the glass-making sites in classic lands in classic times. I therefore use 'Mediterranean' as a convenient term for glass made by the old civilizations which existed on its shores or in vital contact with it, including Mesopotamia.

<sup>20</sup> I would especially acknowledge my indebtedness to Mr Horace Beck, whose unrivalled knowledge of beads and early glass has been invaluable, as well as to Mr R. L. Hobson, Mr Bernard Rackham and Mr G. Eumorfopoulos for much kindly advice. On the chemical side I have had the advantage of unlimited help from the Scientific Laboratories of the Courtauld Institute of Art (University of London), so that it gives me the greatest pleasure to thank Professor W. G. Constable, the Director of the Institute, and Dr P. D. Ritchie, lately Head of the Scientific Department, for their interest and assistance. I am also greatly indebted to the Rt. Rev. Bishop White, formerly Bishop of Honan, for specimens and advice. I should also like to acknowledge help given by Dr Otto Samson, formerly of the Ethnographic Museum, Hamburg, while for permission to reproduce FIGURES 11 and 12 I must thank the authorities of the British Museum and of the India Office respectively.



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In 1929, in Korea, I was shown two perfect glass vessels, pronounced by experts to have been made in the Roman Orient (no doubt Syria) about the fourth century or a little later, excavated by the Japanese from the royal graves of the kings of Silla, the kingdom which for at least seven centuries from about 100 B.C. occupied what is now southeastern Korea. One of these vessels, for the photograph of which I am indebted to Professor S. Umehara, is represented in FIG. 8. These two specimens, with a large dish of 'Roman', *i.e.* probably Syrian, glass (FIG. 9) of the third-fifth centuries A.D., found in China (Honan) and now in the possession of Mrs Margot Holmes, are probably the earliest western glass vessels hitherto discovered in the Far East.<sup>21</sup> Some three centuries later are the half-dozen specimens of 'Arab' glass<sup>22</sup> preserved in Japan in the Shōsō-in at Nara. This houses the property of the Emperor Shōmu, dedicated after his death by his pious queen Kōmio (A.D. 755) to the Todaiji monastery, to which in his lifetime he had been devoted.

So much for glass vessels that were certainly imported, though whether by the transcontinental land route or by sea we cannot say. We can, however, affirm with confidence that glass beads made in the Roman Orient (including Egypt) were traded eastward along the land route. Our evidence for this is twofold: (1) the discovery by Stein in Chinese Turkestan in the neighbourhood of the trade route of beads of western origin, as well as of other objects of glass or frit of western origin; (2) the recognition by Mr Beck and myself of 'Mediterranean'

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<sup>21</sup> I have not included in my examples of early western glass a vase in the Royal Ontario Museum, Toronto, apparently ground out of a lump of glass and decorated with Amazon heads, as this has not yet been adequately studied; perhaps the decoration is not of the same age as the body of the vessel. Some account will be found in *The Burlington Magazine*, 1922, pp. 225-7.

<sup>22</sup> Five of these specimens, figured in vol. VII (plates 1-5) of the Shōsō-in Catalogue, may be considered to have been made in Mesopotamia, Persia, or possibly Alexandria and be dated to about A.D. 700. I take this opportunity of thanking Messrs W. A. H. King and R. Hinks of the British Museum for information concerning the provenance of these early pieces of western glass.

Besides these there are numerous smaller pieces of glass in the Shōsō-in. I have not seen them myself, but owe my knowledge of them to Professor Jiro Harada, whom I take this opportunity of thanking for his assistance. So numerous are these specimens that it seems unlikely that any considerable number are of western origin. They include 200 glass tips (blue, brown, yellow, and green) for the rods (*jiku*) on which are rolled sutra scripts, and about 62,500 glass beads, while many glass beads of different colours help to compose the headdresses worn by the Emperor Shōmu and his consort. There are also pieces of bead work and lumps of unworked glass.

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eye-beads, of a type common in Egypt, among a large number of minor glass objects collected by Bishop White at Lo Yang (the capital of China during the later part of the Chou dynasty). These may perhaps be dated to the middle of the third century B.C., though Bishop White is inclined to place them two and a half centuries earlier.

The Coptic (Egyptian) gilt beads discovered by Stein come from the Loulan and Niya sites in the Tarim desert, which were abandoned not later than the third and fourth centuries A.D.<sup>23</sup> On the other hand, the Lo Yang beads recognized by Mr Beck and myself as being Egyptian in origin are of an earlier type, which may be put down to any time within the last half of the last millennium B.C. The site where they were found in China is generally dated to about 250 B.C., which agrees well with their Mediterranean date. The body of these beads is of pale green-blue glass—translucent rather than transparent—with inlaid 'eyes' having a deep blue centre surrounded by concentric white, brown, and white rings. Not only is there the strongest resemblance, amounting almost to identity, but Dr Ritchie reports as the result of spectrographic analysis that the specimens 'were qualitatively and quantitatively practically identical in composition'.

Beads of approximately the same date have also been found, which are not of glass but which copy the Egyptian glass beads to which I have just referred. Presumably these were made for the poorer folk who could not afford anything so expensive as glass, which was certainly of high value in China. They have a composite core, and are covered with a bluish glaze, the 'eyes' being produced by local heaping up of brown and white glazes to give the desired effect.

It has been generally accepted on literary evidence that glass was not made in China until the fifth century A.D. Hirth quotes an historical work, the *Pei-shih*, to the effect that in the reign of the Wei Emperor T'ai Wu (A.D. 424-52) traders from the land of the Ta Yueh Chih (Bactria) came to his capital [in what is now Shansi], stating that by melting together certain minerals they could produce glass of any colour. They were told to find the required material in the neighbouring hills, and did this so successfully that the glass they produced was considered superior to that brought from the West. An older work, the *Wei Annals*, states that the foreigners came not from Ta Yueh Chih but

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<sup>23</sup> It must not be thought that Stein's discoveries of Egyptian beads were limited to a particular type of Coptic bead. His finds include many other specimens of Roman-Egyptian type.

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from Tien Chu kuo, *i.e.* India.<sup>24</sup> Stein refers with approval to the above account in connexion with his discoveries at Loulan,<sup>25</sup> nor does Hudson dissent,<sup>26</sup> but the facts given below indicate that glass was made *in China* at least as early as the third century B.C., if not earlier. This is but another example of what has often happened before, namely, a belief accepted on literary evidence has to give way to the findings of archaeology. Nor do I base my conclusions solely on the specimens that I have handled or that have been analyzed, for much corroborative evidence will be found in the specimens described and figured by Bishop White in his volume, *Tombs of Old Lo-yang*.

The import of vessels of such fragile material as glass seems proof positive of the high value attached to this substance in China, and this view is supported by a number of glass objects of minor importance which have come to light in the last few years. Many of these are of Chinese manufacture, as is indicated by the presence in the glass of the element barium in substantial amount, a remarkable fact, since, so far as I can discover, barium except in traces is not known to occur in Western or Near Eastern glass, ancient or modern, until about 1884, when, as Mr Beck informs me, it was purposely introduced as a constituent of some of the new glasses with high refractive index and low dispersion put on the market by Messrs Schott of Jena.<sup>27</sup>

The beads I shall discuss immediately; other glass objects of interest are the ear-ornaments (sometimes called capstan beads) and the ceremonial discs (imitating jade) called *pi*, placed under the pelvis of a corpse, which with glass cross-pieces of swords are known from the graves of those who—as we may infer—could not afford jade.

These beads, containing a high percentage of barium, together with a number of glass plaques, constitute a group of objects of Han or late Chou date, both beads and plaques being sometimes inlaid in bronze or silver. They all have in common the interesting feature that the glass body is inlaid with a number of small white rings, producing 'eyelets', with a white outline and coloured centre. Often, but by no means invariably, the white inlay is crescentic rather than circular, producing in the 'eyelets' a peculiar revolving effect.

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<sup>24</sup> Hirth, *Chinesische Studien* (München u. Leipzig, 1890), p. 65.

<sup>25</sup> *Serindia*, p. 393.

<sup>26</sup> *Europe and China*, p. 96.

<sup>27</sup> Analyses of two early beads containing barium will be found in a note contributed by Mr Beck and myself to *Nature*, 1934, xxxiii, p. 982. One bead contained sufficient barium to give barium oxide 19.2 per cent.

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In the majority of the beads the eyelets are collected into small groups surrounded by an inlaid circle of white glass, which gives an extremely handsome appearance against the generally dark blue or greenish blue of the glass constituting the body of the bead. These beads are of high specific gravity, and spectrographic analysis of a number of beads and one plaque, all conforming more or less rigidly to the type described, showed that they all contained barium.

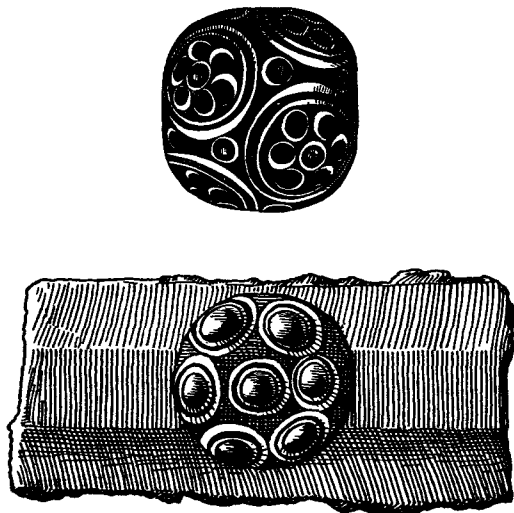


FIG. 4. BEAD (†) AND PLAQUE (c. †) OF BARIUM GLASS  
OF HAN OR PRE-HAN DATE

Other pieces of glass, also of supposed Han date, do not contain barium, indicating the existence of more than one centre of glass-making in northern China in early times.<sup>28</sup>

Let us now consider the origin of the pattern on these beautiful beads of barium-containing glass. The resemblance of many of the Lo Yang beads to certain beads of diverse and sometimes unknown origin in the Beck collection, as well as to some of definitely known European provenance in various museums, immediately suggests that

<sup>28</sup> Professor C. G. Cullis, whom I consulted with regard to the presence of barium ores in China, writes that he knows of no record of 'straight' barium deposits in China, but that there are lead-zinc deposits and mines in plenty and that it is from such that he would expect the barium in the glass to be derived. Actually barium and lead are associated in a number of beads, etc., examined by Dr Ritchie.

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the prototypes of the ornament of the Lo Yang beads are to be found in the West ; and since, where their provenance is known, the majority of the European beads that I suppose to be the prototypes of the Chinese are recognized by archaeologists as belonging to the Late Iron Age (though a few may date to the end of the Early Iron Age), we have a date for their spread eastwards which accords singularly well with the date of the Lo Yang beads. In fact it would be unreasonable not to admit the high probability that the Chinese beads are imitations, though not slavish imitations, of the European. FIG. 5 shows a number of Chinese beads of the Lo Yang type which I have been discussing, and also sketches of two of the presumed European prototypes.

I have perhaps devoted overmuch space to glass, but no doubt many objects of beauty and rarity reached the Far East, either directly by caravan or ship, or indirectly, passing from hand to hand, being copied and perhaps modified in form in the process of transmission. The bull-headed rhyton is a case in point. I have discussed this elsewhere,<sup>29</sup> so that all I need say here is that there is so close a resemblance between classical, Seleucid or Parthian, and ancient Chinese examples that there can be no doubt that the rhytons of the Near and Far East have a common western origin.

So far I have in the main dealt with events of the Han (202 B.C.—A.D. 221) and the centuries immediately before and after that period. The maximum importance of the silk route, as tapping Central Asia and bringing together the Hellenistic and Chinese worlds, was, however, during the T'ang period (A.D. 621–907) to which in the main belong the treasures of the Shōsō-in. Nevertheless 'Romans' and Chinese never came into actual contact, owing to the skilful policy of the Parthians, who were determined not to lose their enormous profits as middlemen in the silk trade. Hudson quotes a passage from the Han Annals which, as he says, shows considerable insight :—

'The kings of Ta Ts'in [the Roman Orient] always desired to send embassies to China, but the Parthians wished to carry on trade with Ta Ts'in in Chinese silks and therefore cut them off from communication'.<sup>30</sup>

The T'ang world, though no larger, was far better known and more easily travelled than that of any earlier period. We must picture a time when artistic influences from the Hellenistic, Indian, and Iranian

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<sup>29</sup> In *Custom is King : essays presented to Dr R. R. Marett on his seventieth Birthday* (Hutchinson, 1936).

<sup>30</sup> Hudson, *op. cit.*, p. 84.

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worlds were pouring into the T'ang capital, Ch'ang An, frequented by members of the most diverse peoples: pedlars and grooms from Central Asia, 'Greeks', Arabs, Persians, Japanese; Hindoos and Jungle men from India (the last presumably in charge of elephants). This list might be extended; it is no effort of the imagination, for at this period there was little Chinese exclusiveness. The T'ang was perhaps the age at which plastic art reached its apogee; it was also a time of great wealth and refinement, in which tomb furniture kept all its old importance, and since many of the foreigners were servants, or in one

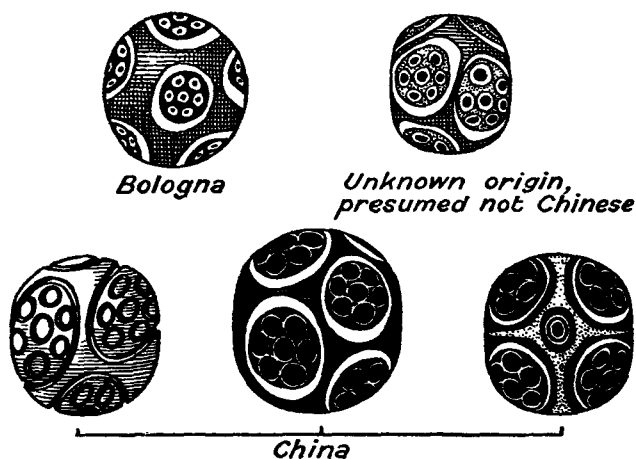


FIG. 5. CHINESE BEADS OF HAN OR PRE-HAN DATE, WITH PROBABLE PROTOTYPES OF 'EUROPEAN' ORIGIN

form or another ministered to the luxury of the wealthier Chinese, there has been opened to us within the last quarter of a century<sup>31</sup> a gallery of plastic portraits excellent in fidelity and often of great beauty, which show us not only the Chinese of that day but also the many foreigners within their gates. Some even exhibit a touch of caricature—the Armenoid (so-called Jewish) nose seems to have been a source of amusement even in T'ang China (FIG. 10, plate III).

<sup>31</sup> T'ang grave figures, if known to Chinese dealers before this date, were not regarded as of any worth; they were not collected by the Chinese and did not reach western collections. It was only when, in the course of building railways in northern China, grave mounds were disturbed without disaster to the violators that grave-goods began to be collected and shipped westward in quantity. There are still Chinese collectors who will have nothing to do with these figures, fearing the results.

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Nor were these foreigners only servants ; we know of monks and warriors, the latter bearing treasure, come from afar to worship the Buddha. At Chotcho, a Turfan site, there have been discovered religious frescoes, paintings on stucco covering the walls of cave temples, of the same class (though differing in style) as those exhibited in the Oriental Gallery of the British Museum. The most imposing of those



FIG. 6. T'ANG EWER WITH HELLENISTIC FIGURE  
*Royal Ontario Museum, Toronto*

discovered at Chotcho have been published by von Le Coq,<sup>32</sup> and among the paintings of monks and adorers of the Buddha are represented types that clearly do not belong to the Mongol race. Whether these are in any instance actual portrait studies it is impossible to say ; I have the impression that they are best regarded as generalized abstractions, in which what are considered to be the distinctive features of each type are emphasized.

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<sup>32</sup> *Chotcho* (Berlin, 1913).

## THE ROMAN ORIENT AND THE FAR EAST

Other evidence of the reciprocal influence of West and East is provided by the frequency of Hellenistic designs on Chinese ceramics and by the export westward of Chinese porcelain, which for centuries affected the pot fabrics of the Near East. Hellenistic influence is well illustrated by the vase in the Royal Ontario Museum, Toronto, reproduced in FIG. 6. This typically T'ang piece bears in relief a dancing figure of Hellenistic type, as well as foliate ornament obviously derived from a Hellenistic design. Of the export of T'ang porcelain to the West, abundant evidence is provided by the excavations at Samarra (some 70 miles above Baghdad), where numerous examples of Chinese stoneware and porcelain have been excavated under conditions that leave no doubt as to their date, namely the ninth century and for the most part the middle of that century.<sup>33</sup> It is worth noting that many of the sherds of local ware (pottery) imitate imported Chinese pieces, and—to go beyond our period—that such imitations continue in the Near East for several centuries, so that the mounds of Fostat (Old Cairo) abound not only with fragments of early Ming celadons but also with local imitations in faience.

In this connexion it is well to emphasize how much more the Chinese of the T'ang period knew of the western world than the western world knew of China. Full accounts of Fu Lin (Byzantium), and of the Arabs and their Prophet have come down to us in Chinese writings. It is not surprising that the Chinese were well informed concerning Islam, for the Emperor T'ai Tsung took into his service the son of the last king of Persia after the Muhammadan conquest of that country. There is an excellent account of Byzantium, obviously the work of a Chinese traveller. He even mentions the mechanical devices that were so much in favour in the eastern Roman capital.

Fu Lin is the ancient Ta Tsin. It is situated on the Western Sea. To the southeast it borders Persia, to the northeast is the territory of the western Turks. The land is very populous and there are many towns. The walls of the capital are of dressed stone, and more than 100,000 families reside in the city. There is a gate 200 feet high, entirely covered with bronze [the Golden Gate]. In the imperial palace there is a human figure of gold which marks the hours by striking bells. The buildings are decorated with glass and crystal, gold, ivory and rare woods. The roofs are made of cement, and are flat. In the heat of summer machines worked by water power carry up water to the roof, which is used to refresh the air by falling in showers in front of the windows.

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<sup>33</sup> F. Sarre, 'Die Keramik von Samarra', being vol. II of *Die Ausgrabungen von Samarra* (Berlin, 1925), pp. 54-62, 101, and plates XXIII-XXIX. Samarra was founded in A.D. 838 and destroyed in 883.



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Twelve ministers assist the King in the government. When the King leaves his palace he is attended by a man carrying a bag, into which any person is free to drop petitions. The men wear their hair cut short and are clothed in embroidered robes which leave the right arm bare. The women wear their hair in the form of a crown. The people of Fu Lin esteem wealth, and they are fond of wine and sweet-meats. On every seventh day [the Christian Sunday] no work is done.

From this country come byssus, coral, asbestos, and many other curious products. They have very skilful conjurors who can spit fire from their mouths, pour water out of their hands, and drop pearls from their feet. Also they have skilful physicians who cure certain diseases by extracting worms from the head.<sup>34</sup>

Let me now return to the caravan route that kept the T'ang capital in touch with the West. Besides objects of rarity and value that passed in bulk or from hand to hand along the highway between the Near and Far East, there were those far more important *imponderabilia*—religion and story. It is not my purpose to discuss the former, but I must mention a piece of painted wood, discovered by Stein at Dandan Uliq in the Takla Makan desert to the east of Khotan and now in the British Museum, which shows the astounding mixture in the religious art of old Khotan. On both sides Bodhisattvas are painted. That on the obverse is a three-headed deity in full Indian style; the figure on the reverse (FIG. 11) affords the most striking contrast, presenting, in spite of its four arms, secular Persian treatment in style and accessories.

The clue to the significance of these two paintings was discovered by Stein many years later when examining the mural paintings of a ruin in southeastern Persia, dating to about the seventh century A.D. The Persian Bodhisattva represents Rustam, the hero of the Persian national epic, and the three-headed figure is a non-Persian rendering of one of the demonic adversaries conquered by Rustam and forced into submission to his king.<sup>35</sup> Here then is a striking absorption of Iranian iconography into the Buddhism of the Far East.

Passing to story, Laufer has shown that the legend of the Diamond Valley reached China from the west. It must be remembered that in the earlier periods the number of gem-stones known to the Chinese was exceedingly limited, while the cut jewel with its qualities of lustre and sparkle did not yet exist, so that the beautiful stones which

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<sup>34</sup> Fitzgerald, *op. cit.* pp. 323-4. To a question as to how closely this account could be dated, Mr Fitzgerald expressed the opinion that while accurate dating was impossible it could probably be attributed to the seventh or eighth century.

<sup>35</sup> Stein, *On Central Asian Tracks*, 1933, pp. 64-5.

PLATE 1

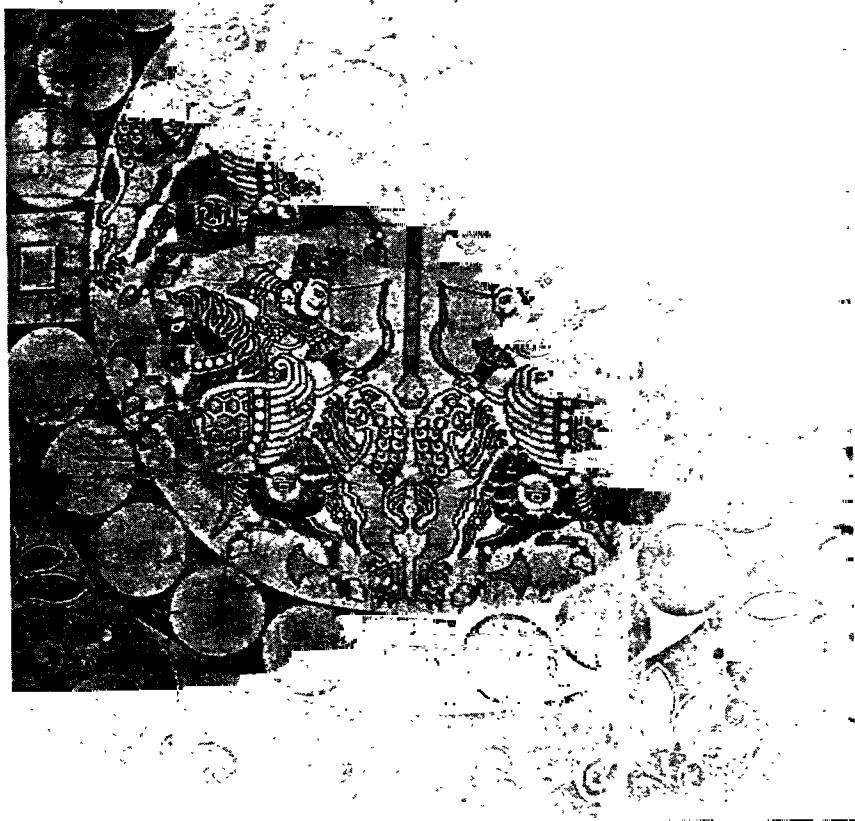


FIG 7. HUNTER SILK, HORIUJI MONASTERY, NARA. (See p. 14)

PLATE II



FIG. 8. GLASS BOWL, SILLA ROYAL TOMBS, KOREA. (See p. 16)

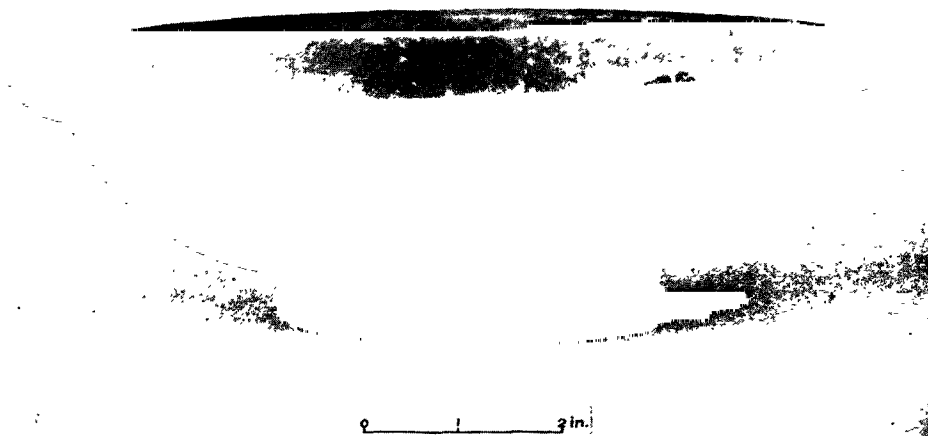


FIG. 9. GLASS BOWL FROM HONAN, NORTHERN CHINA. (See p. 16)

PLATE III



FIG. 11. PAINTED WOODEN PANEL REPRESENTING RUSTAM AS A  
BODHISATTVA (Stein, *Ancient Khotan*), BRITISH MUSEUM. (See p. 24)



FIG. 10. ARMENOID FIGURE, T'ANG PERIOD. (See p. 21)

PLATE IV



FIG. 12. PRINT FROM WOODEN BLOCK DATED 868, PART OF DIAMOND SUTRA SCROLL  
BRITISH MUSEUM. (See p. 30)

## THE ROMAN ORIENT AND THE FAR EAST

reached the Far East in small quantities from the Hellenistic Roman Orient must have created a profound impression. Laufer points out that the oldest version of the western legend is contained in the writings of Epiphanius, Bishop of Constantia in Cyprus (*circa* 315-403):—

‘In his discourse on the twelve jewels forming the breastplate of the High Priest of Jerusalem, the following tale is narrated of the hyacinth. The theatre of action is a deep valley in a desert of great Scythia, entirely surrounded by rocky mountains rising straight like walls; so that from their summits the bottom of the valley is not visible, but only a sullen mist like chaos. The men despatched there in search of those stones by the kings, who reside in the neighbourhood, slay sheep, strip them of their skins, and fling them from the rocks into the immense chaos of the valley. The stones then adhere to the flesh of the sheep. The eagles that loiter on the cliffs above scent the flesh, pounce down upon it in the valley, carry the carcasses off to devour them, and thus the stones remain on the top of the mountains. The convicts condemned to gather the stones go to the spots where the flesh of the sheep has been carried away by the eagles, find and take the stones’.<sup>36</sup>

The Chinese text contained in the *Liang se kung ki* (Memoirs of the four Worthies of the Liang dynasty), gives the following account:—

In the period T’ien-kien (502-520) of the Liang dynasty, Prince Kie of Shu (Sze-ch’uan) visited the Emperor Wu, when he told this story: ‘In the west, arriving at the Mediterranean, there is in the sea an island of two hundred square miles (*li*). On this island is a large forest abundant in trees with precious stones, and inhabited by over ten thousand families. . . . In a northwesterly direction from the island is a ravine hollowed out like a bowl, more than a thousand feet deep. They throw flesh into this valley. Birds take it up in their beaks, whereupon they drop the precious stones’.<sup>37</sup>

This account, for all its brevity, is immediately intelligible in the light of the western legend, with which it coincides in its essentials—the deep valley into which raw flesh is thrown as bait for the birds, who with it carry the stones into accessible positions. Laufer’s conclusions is then justified, the Liang version is directly traceable to that of Epiphanius, and was transmitted to China from Fu-lin, part of the Roman Empire.<sup>38</sup>

So too Hellenistic and Chinese folklore mingle in the ideas transmitted from west to east, distorted, and reflected back again, concerning asbestos and the salamander. Strabo and Dioscorides both knew the plain facts about asbestos, its mineral origin and its fire-resisting

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<sup>36</sup> Berthold Laufer, ‘The Diamond, a study in Chinese and Hellenistic Folk-Lore’, *Field Museum of Natural History, Publication* 184 (Chicago, 1915), vol. xv, no. 1, p. 9.

<sup>37</sup> Laufer, *op. cit.*, pp. 6-7.

<sup>38</sup> Laufer, *op. cit.*, p. 10.

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property; so did the Chinese of Han times. It is only later that western beliefs concerning the salamander and the phoenix being born of fire or uninjured by fire are confused with asbestos cloth, the latter being further confounded with the real bark cloth of Malaya, which the Chinese knew from their travels in Java and Cambodia, so that finally the incombustible cloth really obtained from the west is either the plumage or pelt of western fire-loving mythical birds or beasts.

These examples show the diffusion and penetrative power—if I may use the phrase—of ideas and beliefs of a curious and recondite character. The examples I have given have nothing to do with the fundamental needs or desires of mankind, though no doubt the wonders of far off lands have always had a strong appeal. How much stronger will this appeal be when the ideas transmitted have to do with the most deep-seated of all longings, the defeat of old age and death.

We may, I think, regard it as *à priori* unlikely that the Elixir Vitae was of Near Eastern origin, since there is no mention of anything of the sort in the innumerable Egyptian texts that have come down to us; nor is any such substance recorded in the cuneiform texts of the Sumerians or Assyrians.<sup>39</sup> On the other hand, there is the general belief that alchemy (the transmutation of metals) arose among Alexandrine Greeks in the early centuries of our era, later reaching central Europe *via* the Arabs. In Alexandria transmutation had a philosophical basis, moreover the earliest Greek alchemical writings abound in references to Near Eastern authorities and traditions,<sup>40</sup> but although the Leyden papyrus of the end of the third century, from Thebes, indicates how jewellers may imitate gold and silver, there is no reference to the Elixir, and in the West it was only later that the substance for transmuting metals was considered to have the property of prolonging life indefinitely.

The earliest alchemical writers who have left literary remains lived at a period extending from the third to the fifth centuries,<sup>41</sup> when Alexandria was still a great commercial metropolis. A large

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<sup>39</sup> The large collection of magical texts, coming down to Coptic times, published by Francois Lexa under the title *La Magie dans l'Égypte antique* (Paris, 1925), contains no text referring either to the Elixir or to the transmutation of metals. With regard to Mesopotamia, my statement is made on the authority of Dr Campbell Thompson.

<sup>40</sup> *Encyclopaedia Britannica*, 14th ed., 1929, s.v. ALCHEMY.

<sup>41</sup> John M. Stillman, *The Story of Early Chemistry* (New York, 1924), p. 150.

## THE ROMAN ORIENT AND THE FAR EAST

portion of the Chinese trade reached Alexandria; and just as legends concerning the Valley of Diamonds and asbestos were transmitted to the Far East, so Far Eastern ideas concerning the Elixir might well be discussed in this western city of philosophers. In China such ideas were already well developed centuries before the beginning of the Christian era, for Ch'in Shih Huang Ti (249-210 B.C.), the 'First Emperor' is recorded as having occupied much of his later life in the search for immortality, to be gained by means of a magic drug believed to exist in the three Isles of the Immortals in the Eastern Sea. These islands, P'eng Lai and its fellows, were not so very remote from the home of mankind, and they had been seen by many though it was impossible to land. Having come under the influence of two celebrated magicians, the Emperor organized an elaborate expedition in search of the islands. The expedition did not return, but this failure did not daunt the Emperor, and to the end of his days he sought to discover some means of contact with the immortals and to gain access to their elixir.

It should be pointed out that long before this jade had been regarded as prolonging life and preserving the tissues from corruption—as indicated by its use in the burials of the great.<sup>42</sup> So too gold, and especially gold obtained by transmutation, could be used to assure immortality:—

[The wizard Li] Shao-chün said to the Emperor [Wu Ti of Han]: 'Sacrifice to the stove [*tsao*] and you will be able to summon "things" [*i.e.* spirits]. Summon spirits and you will be able to change cinnabar powder into yellow gold. With this yellow gold you may make vessels to eat and drink out of. You will then increase your span of life. Having increased your span of life, you will be able to see the *hsien* of P'eng-lai that is in the midst of the sea. Then you may perform the sacrifices *fêng* and *shan* and escape death'.<sup>43</sup>

The Elixir Vitae is also mentioned in another important work, the *Ts'an T'ung Ch'i*, written under the pseudonym Wei Po-yang in the second century A.D. Waley thinks it likely that the text may have

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<sup>42</sup> Space is lacking to describe the virtues of jade: though the product of the earth, it is at the same time the essence of Heaven, perfected under high spiritual influence (Laufer, *Jade*, 1912, p. 148). Appropriate emblems of jade were placed upon or within the orifices of the body, *e.g.* the cicada in the mouth, and ceremonial objects of jade were placed within the coffin in contact with the body. Naturally it was only the rich whose grave-furnishings were of jade; I have already alluded to the glass *pi* (p. 18) of the less well-to-do.

<sup>43</sup> A. Waley, 'Notes on Chinese Alchemy', *Bull. School of Oriental Studies*, 1930-2, vol. vi, p. 2. Chinese words have been omitted and only their transliteration given.



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been doctored to give an alchemical interest later, *i.e.* in the fourth century. This view does not imply any considerable re-arrangement, for only one of the ninety sections into which the text is arranged deals specifically with the Elixir, and this in the most definite manner :—

‘ Gold by nature does not rot or decay ;  
Therefore it is of all things most precious.  
When the artist [*i.e.* alchemist] includes it in his diet  
The duration of his life becomes everlasting . . .

.....  
When the golden powder enters the five entrails,  
A fog is dispelled, like rain-clouds scattered by wind.  
Fragrant exhalations pervade the four limbs ;  
The countenance beams with well-being and joy.  
Hairs that were white all turn to black ;  
Teeth that had fallen grow in their former place.  
The old dotard is again a lusty youth ;  
The decrepit crone is again a young girl ’.<sup>44</sup>

We cannot say how early the belief in the life-giving virtue of gold may have arisen ; the first text given above, though attributed to the first century B.C., may be a hundred years or more later,<sup>45</sup> but it is obvious that the belief must have existed at an earlier date than the text. Linking this to what we know of the Elixir in the West, it seems reasonable to infer that the belief originated in China,<sup>46</sup> for these texts that I have cited, coupled with what we know of the accredited properties of jade, seem to prove the existence of a strongly held belief in the Elixir Vitae in the Far East at a time when there is no evidence for the existence of this belief in Europe. Moreover it seems probable that more evidence in favour of this view might be derived from a new examination of Chinese sources, for Laufer’s great work on jade was published in 1912.

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<sup>44</sup> Waley, *op. cit.*, p. 11. It might have been expected that jade rather than gold would have been cited in the texts quoted. Mr Waley has suggested to me that the admiration for gold was adopted from the northern nomads at the time when their costume and military tactics were taken over by the Chinese.

<sup>45</sup> Waley, *op. cit.*, p. 3.

<sup>46</sup> In arguing that the Elixir Vitae as known to the western world since the early centuries of our era originated in China, I do not ignore the view put forward by the late Sir Grafton Elliot Smith and Dr W. J. Perry that all ‘life givers’ had their origin in the beliefs of Ancient Egypt, which spread across Eurasia at a comparatively early date. I would, however, point out that even if this view be held the diffusion westwards of a conception which was flourishing in the Far East in the latter half of the first millennium B.C. can still be accepted.

## THE ROMAN ORIENT AND THE FAR EAST

The last matters to which I shall refer are those two great gifts of China to the West, paper and printing, the latter for practical purposes impossible without the former. Up to the end of the Chou dynasty writing was done with a bamboo pen upon slips of bamboo or wood. Then came the writing brush of hair, but paper, or near-paper, was invented about the end of the first century A.D., traditionally in the year 105. Rag paper dating from the middle of the second century was discovered by Stein at Tun Huang in the form of eight letters on paper (together with letters on silk and wood). Discoveries at Turfan date to the end of the fourth century. These, together with later documents from Turkestan, show that the paper was manufactured from both raw fibre and worked up material, *e.g.* the remains of old textiles and fishing nets, a discovery indicating that it was not the Muslims of Samarkand who, as commonly held, originated rag paper:—

‘ Rag paper, supposed till 1885 to have been invented in Europe in the fifteenth century, supposed till 1911 to have been invented by the Arabs of Samarkand in the eighth century, was carried back to the Chinese of the second century, and the Chinese record, stating that rag paper was invented in China at the beginning of the second century, was confirmed’.<sup>47</sup>

Gradually the Chinese improved the composition and face of their papers, so that it was a perfected invention that passed from the Chinese to the Arabic world. Thence it reached Baghdad in the eighth century, Egypt soon after, whence *via* Morocco (*c.* 1100) to Spain, and so to Central Europe, having also reached Italy *via* Libya and Sicily.

Without considering the part that seal-stones and rubbings from graven stones (lithography in its simplest form) may have played in the evolution of printing, let me say that there may be some doubt as to the accuracy of a reference to printing in China at the end of the sixth century, and emphasize the fact that the earliest datable block-print extant is of A.D. 770 and comes from Japan. Block-printing must, however, have been practised in China sufficiently long before this for it to have attained such considerable development in Japan, since the relics of A.D. 770 (for a number have been preserved) are of the series of one million charms ordered by the Empress Shotoku. Examples of these preserved in the Horiuji monastery at Nara in Japan, in the British Museum, and in the museum at Leipzig, show that

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<sup>47</sup> Thomas Francis Carter, *The Invention of Printing in China and its spread westward* (New York, 1931), p. 5. To this work I gratefully acknowledge my indebtedness for this short account of early paper and printing.

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the strips of paper used are about eighteen inches long by two wide, each bearing thirty columns of five characters each.<sup>48</sup>

Japan produced no books at this time, or if she did they have not come down to us. The earliest printed book (*i.e.* scroll) that can be dated with certainty is Chinese and was produced in May 868—no primitive piece of printing like the Japanese charms but a superb version of one of the holiest of Buddhist texts, the *Diamond Sutra*—though there is reason to believe that a copy of the *Kuan Yin Sutra* in the British Museum may be even earlier, of 8th century date (FIG. 12).

The T'ang dynasty came to its end within a hundred years of the printing of the *Diamond Sutra*, and it is not my purpose to attempt to carry my sketch of the contacts of West and East beyond the years of that dynasty. A kindly critic has suggested that I should conclude with a summary. This seems unnecessary, for I have done little more than touch on each of the subjects that I have put before you. I may, however, express the opinion that early contacts between Europe and the Far East will, as knowledge advances, prove to have been far more numerous than has hitherto been generally accepted.

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<sup>48</sup> Carter, *op. cit.*, p. 36.

# Prehistory and the Romantic Movement

by STUART PIGGOTT

IN a stimulating essay published a few years ago,<sup>1</sup> Mr O. G. S. Crawford indicated how the archaeology of the nineteenth century was a natural outcome of the social and industrial background of the period, and resulted from a combination of circumstances which gave opportunities for the investigation of Man's remote past. If we examine the study of British prehistory during the eighteenth and early nineteenth centuries in its relation to contemporary fashions in literature and the visual arts, we shall I think, see that the accurate and precise science which some of us would consider modern archaeology to be began merely as an episode in the history of taste less than two hundred years ago.

To examine in detail any phase of the changing literary tastes of this period would entail erudition far beyond my powers, and space exceeding an entire number of ANTIQUITY. This essay must then be considered only as a superficial glance at certain aspects of archaeology in England during a period which we may roughly indicate as from 1720 to 1820, when that change of outlook known as the Romantic Movement came about. It is impossible here to do more than indicate some of the features of Romanticism that have a bearing upon the contemporary archaeology, and I must assume that the broad outlines of the Romantic Movement are familiar to my readers—a subject so vast, and with such intricate and far-reaching ramifications, that the study of even a part could form the work of a lifetime. But the main features are obvious—that turning away from the clear calm daylight of the classical ideal to a vague exciting barbarian gloom for inspiration: two quotations from minor poets will show the contrast better than a page of explanation. Here is Lady Winchilsea writing 'Upon my Lord Winchilsea's Converting the Mount in his Garden to a Terrace' (1713):—

Complete in all its late unequal frame,  
No loam or lath does now the building shame  
But graceful symmetry without is seen,  
And use with beauty are improv'd within.

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<sup>1</sup> 'The Dialectical Process in the History of Science', *Sociological Review*, April-June, 1932.

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while here is David Mallet enjoying himself on his *Excursion* (1726) :—

Behind me rises huge an awful Pile  
Sole on this blasted Heath, a Place of Tombs,  
Waste, desolate, where Ruin dreary dwells  
Brooding o'er sightless Sculls, and crumbling Bones.

These extracts have all the unfairness of being chosen for contrast, but they illustrate the point. Blasted heaths rather than garden terraces were to be the haunts of the Muse, the polite was to give way to the picturesque, shaven lawns to shaggy landscapes. It must be emphasized that this changed outlook was not confined to a small literary circle. The extent to which it affected 'every department of life and art' can be gathered from Mr Kenneth Clark's erudite and entertaining study *The Gothic Revival*—a book to which my indebtedness is shown by the frequent quotations from it in this essay—while Mr T. D. Kendrick indicated many years ago<sup>2</sup> how the interest in the Druids and Druidism, which constituted so important a part of archaeology in the eighteenth and early nineteenth centuries, was directly due to the general trend of thought brought about by the Romantic Movement.

We can trace the growth of ideas favourable to British archaeology in more than one direction. I have already, while hardly touching upon the edge of Romanticism, been forced to mention landscape, for the changed attitude towards natural landscape, towards the picturesque, is one of the dominant features of Romanticism. Clark<sup>3</sup> has indicated the importance that the Lake District had already assumed before Gray's visit in 1770—an importance maintained in the nineteenth century under Wordsworth's dominance; and he has drawn attention to the tours of those travellers who, like Dr Syntax, were in search of the Picturesque. And here we have the beginnings of field-archaeology, that peculiarly English branch of the subject, for it is essentially a part of our landscape. Barrow and hill-fort, standing-stone and hut-circle, are as much common objects of the countryside as the forests and mountains, and those more obvious relics of antiquity—the ruined abbey or castle—without which no truly picturesque landscape could be considered complete. It became fashionable for the country gentleman to make tours on horseback—even perhaps to such remote and barbarous parts as North Wales—and not infrequently diaries of these tours were written and published. 'Tour writing,' says Byng,<sup>4</sup> one of

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<sup>2</sup> *The Druids* (1927), chap. 1.

<sup>3</sup> *The Gothic Revival*, 78.

<sup>4</sup> *The Torrington Diaries*, vol. 1, 1781-1794 (1934), 69.

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the most entertaining travellers of them all, 'is the very rage of the times' and one need only mention a few of the better known of these writers—Young and Gilpin, Pennant and Hutton, are names that immediately come to the mind. In these tours, by men with no pretensions to archaeological learning, we find that antiquarianism takes a large part. 'The Gothick' is of course the predominant interest: for his 'Tour to the West' of 1781 Byng provided a title-page in which one looks on to an open landscape through crumbling arches and mouldering vaulting, for all the world like Bentley's fantastic illustration to Gray's 'Elegy' of half a century earlier, but on his travels he visits Rollright, Maiden Castle and the Plas Newydd megaliths in Anglesey, for which he makes a strangely modern plea for proper preservation.

But the professed antiquary had been out on horseback with his notebook for a great many years before Byng and his contemporaries went on tour. Most famous of course was William Stukeley,<sup>5</sup> who in the first quarter of the eighteenth century decided that 'if ruminating upon antiquities at home be commendable, travelling at home for that purpose can want no defence',<sup>6</sup> and set off on those journeys the first fruits of which was the *Itinerarium Curiosum* of 1724, a book whose purpose was 'to oblige the curious in the Antiquities of Britain: it is an account of places and things from inspection, not compiled from others' labours, or travels in one's study'.<sup>7</sup> Nevertheless it is important to remember that, pioneer though Stukeley was, his work did not stand alone. An Anglesey parson, Henry Rowlands, produced an account of the prehistoric (mainly megalithic) remains of his own parish in 1723 under the title of *Mona Antiqua Restaurata*, while of course Aubrey (a Romantic before his time if ever there was one) had written his *Monumenta Britannica* in the middle of the seventeenth century; and in 1738 we see the publication of Wise's famous *Letter to Dr Mead Concerning some Antiquities in Berkshire*. By the 1750's archaeological literature that was the product, not of research into classical history in study or library, but of field observation, was firmly established: the indefatigable Stukeley produced his *Stonehenge* in 1740, his *Abury* in 1743, while among other works Borlase's *Antiquities of Cornwall* (1754) stands out. The Society of Antiquaries had been founded in its

<sup>5</sup> For a study of certain aspects of Stukeley's life and work see *ANTIQUITY*, 1935, IX, 22-32.

<sup>6</sup> *Itinerarium Curiosum*, 2.

<sup>7</sup> *op. cit.*, Preface.

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present form in 1718 and in its publications devoted not a little space to English prehistory.

It is not impossible that some of this archaeological activity in England was the result of that incipient nationalism that Clark has noticed among the less creditable products of the Romantic Movement.<sup>8</sup> Borlase in his preface however hints that his study of Cornish antiquities arose from lack of opportunity to investigate those of classical times. Those making the Grand Tour, he observes, 'returning captivated with the Medals, Statues, Pictures and Architecture of Greece and Italy, have seldom any relish for the ruder products of ancient Britain. My situation in life (whatever my inclinations might be) confin'd me to a different track ; I saw my self plac'd in the midst of Monuments, the works of the ancient Britains, where there were few Grecian or Roman Remains to be met with ; my curiosity therefore, could only be gratified by what was in its reach, and was confined to the study of our own Antiquities'.

What was the background to all this interest in prehistory ? Romantic poetry was establishing a firm hold—I have already quoted from Mallet's *Excursion* of 1726—and although Dyer's *Fleece* (which, for all its Virgilian flavour, has an underlying country realism closely akin to Wordsworth) was not published until 1757, in 1726 he wrote *Grongar Hill*, a romantic poem with ivy-clad ruins playing an important part. Gray, perhaps the most important of the Romantics, was travelling on the Continent with that scarcely less significant figure, Horace Walpole, and his 'little fat black spaniel' that was devoured by a wolf in the Alps. In 1747 Walpole bought Strawberry Hill ; by 1753 it was transformed into a gothical fantasy. Non-classical archaeology, were it represented by Goths or Druids, Stonehenge or Salisbury Cathedral, was popular, and the archaeologist on the way to becoming an established figure in the gallery of eighteenth century English eccentrics.

Mr Kendrick, as I have said, pointed out the fundamental importance of the Romantic Movement in the revival of interest in the Druids in the eighteenth century, but we must realize that a public that regarded the whole series of architectural forms from Romanesque to Tudor as a single Gothic style would not be in a position to make nice distinctions between the more subtle differences of the non-historic ages. The situation is admirably presented in a letter from Gray to Mason, in connection with the latter's *Caractacus* (published 1759) :—

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<sup>8</sup> *The Gothic Revival*, 89.

## PREHISTORY AND THE ROMANTIC MOVEMENT

I expect to see Caractacus completed, and therefore I send you the books you wanted. I do not know whether they will furnish you with any new matter . . . I told you before that (in a time of dearth) I would borrow from the Edda, without entering too minutely on particulars . . . However, on second thoughts, I think it would be still better to graft any wild picturesque fable, absolutely of one's own invention, on the Druid-stock ; I mean on those half dozen of old fancies that are known to be a part of their system. This will give you more freedom and latitude, and will leave no hold for the Critics to fasten on.<sup>9</sup>

So we see that a revived interest in Druids is of wider application than the word may suggest ; it was in fact an interest in all prehistoric archaeology that was becoming general, however vaguely and confusedly expressed, and of course closely allied all the time to the more easily grasped archaeology of Gothic architecture. Megalithic monuments, because more obviously architectural than any other type of prehistoric antiquity, were clearly the most favoured candidates for attention, and since Stukeley's lamentable and all too successful efforts on their behalf, the Druids had these for their own. What more could one need to satisfy one's romantic desires ? A Druid's cell, ivy-clad and dank, was really almost as good as that other romantic but rheumatic retreat, a hermit's grot, so beloved of the period. ' Nothing, it was felt ' (says Miss Sitwell) ' could give such delight to the eye, as the spectacle of an aged person with a long grey beard, and a goatish rough robe, doddering about among the discomforts and pleasures of Nature ', nor can it be chance that whereas volume 4 of Grose's *Antiquities of England and Wales* (1773-87) has on its title-page a vignette of a Druid and Stonehenge, volume 3 is adorned with a charming picture of a hermit in his cell. It has been the fate of the megaliths, particularly the great stone circles, to be the victims of Romanticism up to the present day.

With the beginning of the nineteenth century we have a taste for prehistoric archaeology well established as a companion to the all-pervading interest in Gothic. It is usual to lay stress on the importance of Scott's novels in turning the public taste in this direction, but I agree with Mr Clark in thinking that by the 1820's such taste was already fully formed. To the prehistorian, the most important landmark in early nineteenth century archaeology is the publication of the first volume of Sir Richard Colt Hoare's *Ancient Wiltshire* in 1812—that magnificent record of field-work carried on in the finest Stukeley tradition. At first one looks in vain for any evidence of the influence

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<sup>9</sup> Gray to Mason, 19 December, 1757.



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of the contemporary Romanticism on the monumental volume that opens with all the solemnity of a major prophet—'We speak from facts, not theory. Such is the motto I adopt, and to this text I shall most strictly adhere. I shall not seek amongst the fanciful regions of romance, an origin for our Wiltshire Britons . . .'. And yet, on the title-page, garlanded round with a very fanciful border of arrowheads and beads, appear the words 'AUNCIENT WILTSCIRE'—that Romantic affectation of archaistic spelling that starts with Spenser and persists in 'Ye Olde Tea Shoppe'. Even Colt Hoare could not be wholly unaffected by the contemporary Romanticism. When digging barrow 9 on Oakley Down in Cranborne Chase a thunderstorm came on which would 'ever be remembered both with horror and pleasure by those who were present', and which induced the Rev. William Lisle Bowles to write a poem complete with a 'white-haired Druid bard sublime' which was printed in full by Sir Richard in his august folio.

By now Archaeology and Romanticism walked hand in hand, familiar twin figures in the English scene. How inevitable that Higgins's *Celtic Druids* (1829) should have a lithographed title-page whereon a blasted oak flanks a crumbling stone inscribed 'And like the baseless fabric of a vision . . .', overgrown with nettles, thistles and toadstools, while in the background Stonehenge is outlined against the sunset. It is without surprise that one finds Mr Miles, describing *The Deverel Barrow* (1826), indulging in sweetly melancholy meditations—'On a spot so hallowed by the Wing of Time, the imagination may vividly depict the rude but solemn rites attendant on the burial; the blazing pile flinging its lurid beams around . . .' and so on, with 'mystic songs of bards', 'frantic yells' and 'wild and piercing shrieks of expiring victims'. And at this point I may perhaps touch on a curious aspect of the early barrow-diggers' mentality which I believe is reflected in their works. A morbid interest in graves and skeletons is well known as a psychological phenomenon which has often been exploited in literature and art. In English literature perhaps the most famous example is Blair's *Grave*, written before 1731, and we have the authority of Dean Farrar that 'few essays have had wider circulation among admiring readers than the vicious and tawdry rhetoric of Harvey on the Tombs' (*Meditations among the Tombs*, 1746). This feeling was inevitably latent in certain aspects of the Romantic Movement—it comes out for instance in Bentley's designs to Gray's poems, and in a thousand other places, notably in the 'Tale of Terror' type of story beginning with the *Castle of Otranto* and continuing in the works of

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Lewis, Mrs Radclyffe, and others—and I cannot but detect traces of conscious gloating over the paraphernalia of Death in some of the early archaeological records. It is implicit in that curious effusion *The Barrow Diggers*, written ‘in imitation of the Grave-Diggers in Hamlet’ (1839). Is it to this mental attitude, probably more often unconscious than deliberate, that we are to attribute the fact that until scientific excavation began with Pitt-Rivers, prehistoric settlement sites remained almost entirely neglected in favour of wholesale barrow-digging? One has of course to reckon with the strong acquisitive instinct of the collector which Crawford has shown in its proper social background in the essay I have mentioned, which would be better satisfied with the complete grave-furniture than with the broken scraps from a midden, but I think this other factor must be allowed some weight.

The history of prehistoric archaeology in the middle of the nineteenth century falls outside the scope of this essay, for henceforward it takes its place, with Gothic Architecture, as part of Victorian culture. Haverfield<sup>10</sup> saw a connexion between the growth of interest in the study of Roman Britain at all events, and the religious movements—‘the antiquary and the tractarian’, he remarks, ‘have much in common’. And as he points out, archaeology at this time ‘moves along lines characteristic of the early Victorian age through the formation of societies’. The 40’s and 50’s saw the beginnings of that most English of all institutions, the local archaeological society, which with its lectures and excursions played so important a part in the leisured life of Victorian England and which is today the backbone of our local archaeological research. The atmosphere of the archaeological excursion of ninety years ago can be perfectly recaptured from a contemporary newspaper report of the Cambrian Archaeological Association’s visit to Strata Florida in 1847.

The scene at the Abbey was at one time a most interesting one, several ladies having joined the party. Architects and draughtsmen were measuring and sketching portions of old buildings, and one dignitary of the Church was transferring the resemblance of the gateway to his sketch-book, whilst another dignitary lent an attentive ear to some amusing anecdote of bygone days . . . All seemed to vie with each other who should do the most towards the advancement of the object of the excursion; and whilst intelligent commoners were measuring the building, an enthusiastic nobleman might be seen busily washing the tiles and ornaments for removal and preservation.<sup>11</sup>

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<sup>10</sup> *Roman Occupation of Britain*, Lecture 1.

<sup>11</sup> *The Welshman*, 17 September, 1847, quoted by Evelyn Lewes in *Out with the Cambrians*, 1934, p. 30.

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With the local societies came the local museums—the beginnings of scientific collections of material, but still sometimes oddly Romantic. No finer example of the marriage of Prehistory to the Gothic Revival can be quoted than the famous Blackmore Museum at Salisbury, built in 1864 and happily preserved in practically its original state today. Here the very fine collections of comparative prehistory and ethnography formed by William Blackmore and E. T. Stevens were housed in a setting of exuberant Gothicism—a hammer-beam roof richly coloured, encaustic tiles, wall-cases with Gothic heads and elaborately stencilled in bright coloured designs, free-standing cases with vermilion and gilt battlements <sup>12</sup> In this scene of Puginesque splendour the Fisherton palaeoliths or the Danish flint axes look oddly out of place—the scientific typological series struggling amidst the Romantic fog in which the science had its origin.

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<sup>12</sup> Battlemented cases, roughly contemporary, exist at Devizes and Dorchester museums, and probably elsewhere. They might well have roused the ire of the Cambridge Camdenians, who were so incensed at the pews, 'half-roofed like country villas and sometimes even *embattled*' which in response to popular taste were being placed in churches a few years earlier. (*A Few Words to Churchwardens*, 1842, II, p. 6).

# The Coleraine Hoard

by HAROLD MATTINGLY and J. W. E. PEARCE

WITH A NOTE BY T. D. KENDRICK

**E**ARLY in 1854, in the townland of Ballinrees, about three and a half miles west of Coleraine, county Londonderry, Ireland, a labouring man unearthed from a considerable depth in peaty soil one of the most remarkable hoards of Roman silver ever found in our isles. Though no trace remained of any urn or other container, it was apparent, both from the depth of the deposit and from the closeness with which the whole was packed together, that it was indeed a hoard, no mere chance series of deposits.

The hoard is of exceptional interest from several points of view :

(1) it is a noteworthy example of the rare type of hoard, in which silver coin and silver plate are combined. In Ireland of the Roman period it is unique.

(2) it includes within itself a very late hoard of Roman silver coins,<sup>1</sup> to which we can now assign a probable date with much more assurance than could the original commentators on the hoard.

(3) there is sufficient of characteristic style and craftsmanship preserved in the fragments of silver plate to give this hoard, with its possibilities of fairly close dating, an importance of its own in the history of art.

The Coleraine hoard was at once published, and has been discussed on more than one occasion.<sup>2</sup> Nevertheless, it has seemed well worth the while to accept the kind invitation of the Editor of *ANTIQUITY* and

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<sup>1</sup> From the circumstances of finding it appears possible that the coin hoard may be less uniform than some others and may represent the amalgamation of a number of smaller hoards carried off as loot.

<sup>2</sup> *Ulster Journal of Archaeology*, 1854, pp. 182 ff (J. Scott Porter : note on the coins by James Carruthers) : republished in *Num. Chron.* 1854-1856, xvii, 101 ff with some minor alterations, which cannot now be checked. The hoard was discussed by Haverfield in *English Historical Review*, 1923, xxviii, pp. 1 ff ('Ancient Rome and Ireland'), by Curle in *The Treasure of Traprain*, 1923, who there has collected the evidence for silver hoards of a similar character, and by Ridgeway in *Journal of Roman Studies*, 1924, pp. 123 ff (Niall 'of the Nine Hostages', etc.)

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to publish the hoard again, in order to place a well-illustrated account in the hands of the modern reader and, at the same time, to add some observations that should materially affect our judgment of the hoard.

We begin with the coins. The total number is stated at 1506—a correction of an original estimate of 1937. There was one single large piece ('miliarensis') of Jovian; all the rest were 'siliquae', ranging from Constantius II to Constantine III. The distribution over reigns was as follows :<sup>3</sup>

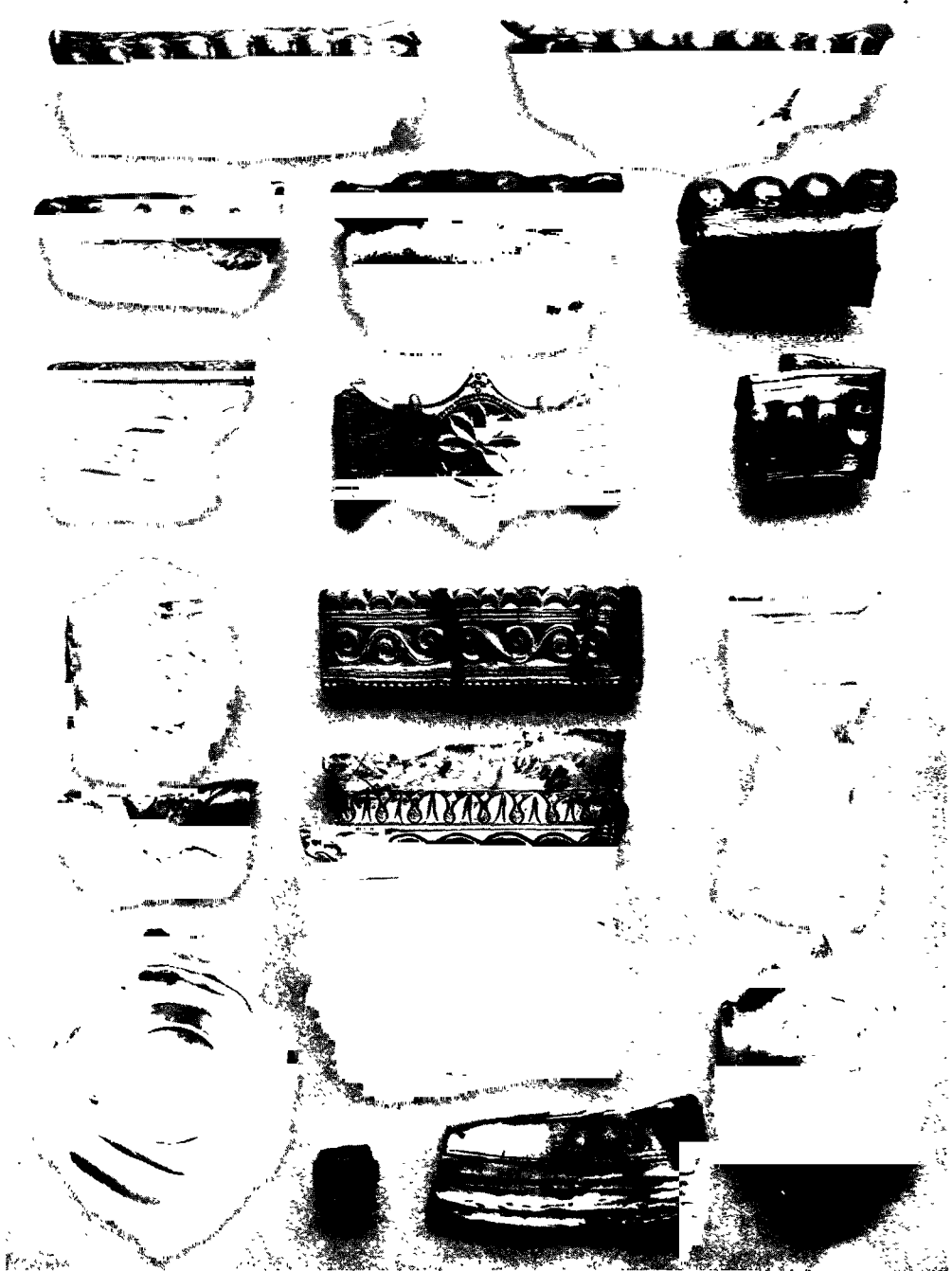
Constantius II	22
Julian II	75
Jovian	1 (and 1 'miliarensis')
Valentinian I	34
Valens	71
Gratian	85
Valentinian II	17
Theodosius I	41
Magnus Maximus	52
Flavius Victor	8
Eugenius	37
Arcadius	142
Honorius	141
Constantine III	5
	<hr/>
	731
	<hr/>

There were, further, 751 unidentified, of which 537 were clipped, 194 slightly clipped.<sup>4</sup> A further 195 'siliquae'—Valens, Gratian and Honorius—are said to have been found subsequently near the same place. In the original description some sixty of the coins assigned to reigns were described as 'clipped', something like twice that number as 'partly clipped'. The rest of the hoard was described by Mr Carruthers as 'in a high state of preservation'. As far as it is possible today to check these opinions, we cannot endorse them in either case.

<sup>3</sup> The coins are described in the works just quoted as 'denarii'. We now call them by the agreed name of 'siliquae', which is probably correct (Mickwitz's view that the coin was really a 'half-siliqua' seems very difficult to accept). Some of the smaller pieces were described as 'quinarii' or, as we should say, 'half-siliquae'. There is apparently only one example of the real half-piece, a 'Victoria Augg.', of Arcadius: the rest were simply badly chipped pieces. The number of coins of Julian II is given in the *Ulster Journal of Archaeology* as 68, in the *Numismatic Chronicle* as 75; no number is given for Constantine III in the former.

<sup>4</sup> The number is given in the *Ulster Journal of Archaeology* as 684; 557 clipped, 127 partially clipped.

PLATE I



THE COLERAINE HOARD FRAGMENTS OF SILVER DISHES, SLIGHTLY OVER HALF-SIZE  
(see also PLATES IV and V)  
*British Museum*

PLATE II



THE COLERAINE HOARD    SILVER INGOTS AND SPOONS, SLIGHTLY OVER HALF-SIZE

(see also PLATE VI)

*British Museum*

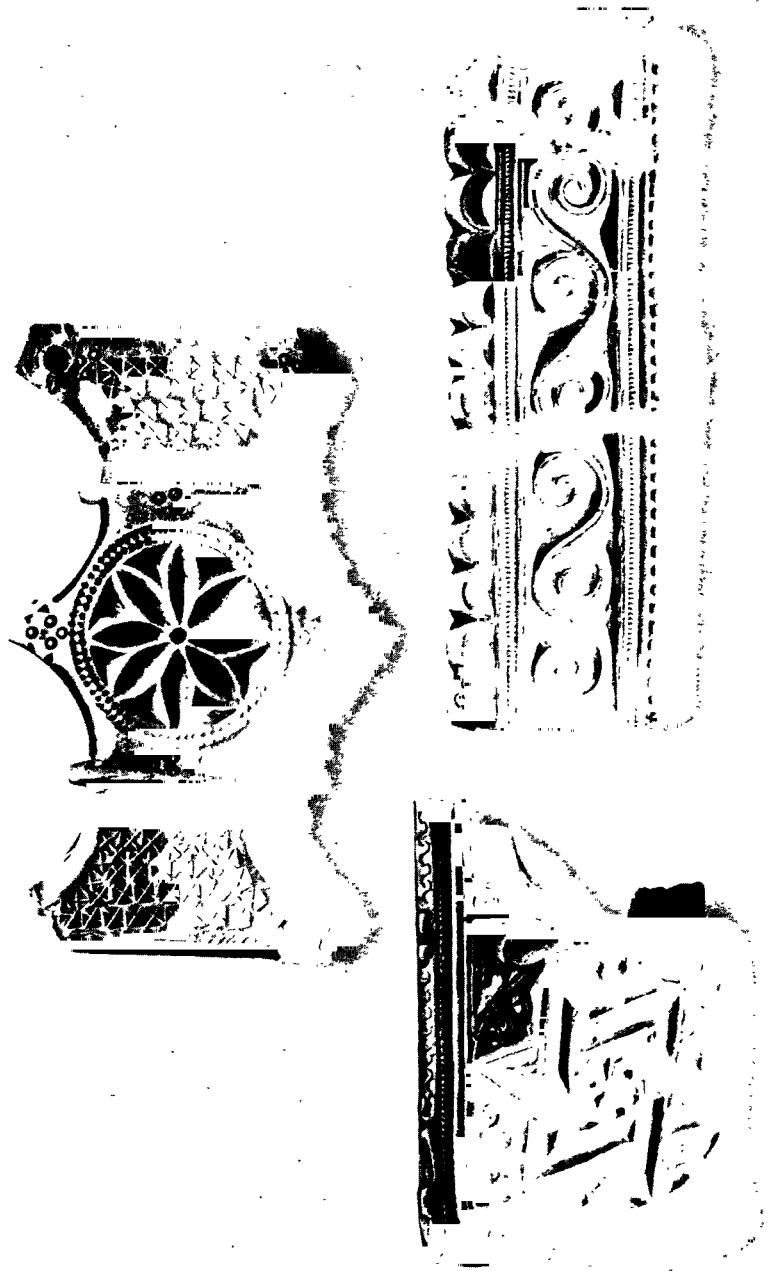
PLATE III



THE COLERAINE HOARD: SILVER BOWL (Height 4½ inches)  
*British Museum*



# PLATE IV



THE COLERAINE HOARD: FRAGMENTS OF SILVER DISHES SLIGHTLY ENLARGED. (See PLATE I)  
*British Museum*

PLATE V



THE COLERAINE HOARD. FRAGMENTS OF SILVER DISHES, ENLARGED  $\times 14$ . (See PLATE I)  
*British Museum*



THE COLERAINE HOARD. FRAGMENTS OF SILVER INGOTS, ENLARGED  $\times 11$ . (See PLATE II)

*British Museum*

## THE COLERAINE HOARD

We should suppose that few, if any, of the coins had entirely escaped clipping, and that the majority showed some trace of wear.<sup>5</sup>

A limiting upper date for the hoard is at once given by the presence of coins of Constantine III, 407-411. Even apart from this, the hoard has other features, which definitely point to at least as late a date. Mr Pearce, in a paper in the *Numismatic Chronicle*,<sup>6</sup> has investigated and made clear the criteria by which the date of hoards of late Roman silver can be determined. The chief points to note are :

(1) the proportions of coins of Theodosius I, Arcadius and Honorius ; and

(2) in a special sense, the proportions of the same Emperors at the key-mint of Milan, the great mint of 'siliquae' at the turn of the fourth to fifth century A.D.

Let us glance at a few examples :

A. NORTH MENDIP HOARD (*Num. Chron.* 1915, pp. 433 ff).

Theodosius I	Arcadius	Honorius
178	36	12
(Milan) 11	18	12

Mr Pearce suggested a date early in 395. Today, perhaps, we might urge that a few years are required, after the death of Theodosius I, to enable Honorius to equal his father's numbers in the mint of Milan.

A slightly later class is represented by :

B. ICKLINGHAM I (*Num. Chron.* 1908, pp. 215 ff : 1936, pp. 257 ff).

Theodosius I	Arcadius	Honorius
53	47	21 <sup>7</sup>
(Milan) 2	23	21

Arcadius has drawn up on Theodosius I, and Honorius on Arcadius. Both sons have outdistanced their father at Milan. The date must be a few years later than A.

C. TERLING (*Num. Chron.* 1933, pp. 145 ff).

Theodosius I	Arcadius	Honorius
27	44	30
(Milan) 1	18	29

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<sup>5</sup> This statement is based on a careful examination by Mr Pearce of the 83 Coleraine coins, which were kept by the British Museum. The *Ulster Journal of Archaeology* gives the number of clipped coins as 657, of partially clipped as 199. Even if the clipping did not extend further, the hoard is classed at once as one of the few that show the practice of clipping far advanced.

<sup>6</sup> 1933, pp. 170 ff.

<sup>7</sup> If Icklingham III hoard is really part of the same as I the figures for Milan will be Theodosius 1, 2, Arcadius 63, Honorius 90.

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Arcadius has passed Theodosius, Honorius is drawing up to Arcadius, and, at Milan, has actually passed him. Late Milan issues, mainly after A.D. 395, are beginning to predominate. The date must be a few years later than B.

It is to this class (c) that Coleraine clearly belongs, with the figures :

Theodosius I	Arcadius	Honorius
41	142	141
(Milan) 3	44	53

The real figures for Milan, could we read all the mint marks, would be very much higher : the coins of Honorius would be almost exclusively of that mint. It should perhaps be placed a little later, as the shift of proportions of coins of the three rulers, noted at Terling, has at Coleraine gone a stage further.

It will now be apparent that the date, 407, has no significance for Coleraine, except as an absolute upper limit. The general composition of the hoard is such that we cannot imagine its having been brought together before *c.* 410 at earliest. It needed time for the issues of the Emperor Honorius and of the mint of Milan to acquire the dominating position that they hold in this hoard. To the earliest possible date of formation we have to make an addition, which we have no means of estimating, to cover the looting and re-burial of the coins. There is one other fact that strongly suggests later date. The clipping of 'siliquae' offers some curious problems, into which we cannot enter here, but numismatists are agreed that the practice only set in acutely some way on in the reign of Honorius. We might well argue that it was only when fresh supplies of 'siliquae' from the Italian mints ceased to arrive that clipping became prevalent in the West. Taking all facts into consideration, we may suggest *c.* 420 as the earliest probable date, and associate our hoard not with Niall 'of the Nine Hostages',<sup>8</sup> but with one of his successors, who shared in those violent raids on Britain that finally drove Vortigern to call in the Saxon to his aid. There is nothing in the coin evidence to make an even later date than 420 impossible ; we have no certain means of fixing the lower limit.

It has been argued that the composition of the Coleraine hoard, with its mass of 'siliquae' of Honorius, suggests Continental, not

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<sup>8</sup> As did Ridgeway in *J.R.S.*, 1924, pp. 123 ff. Niall, according to tradition, died in 405 and is really too early to come into consideration.

## THE COLERAINE HOARD

British, origin. A wider knowledge of British hoards<sup>9</sup> enables us today to reject this line of argument. There is no reason, as far as the coins go, to reject the most obvious hypothesis, that the hoard came from the exposed West of England.

Our hoard, as a whole, undoubtedly represents scrap silver—vessels broken up and reduced to elementary form, perhaps for the use of a silversmith at his craft.<sup>10</sup> But, as the coins survive as coins in large numbers, it seems rash to deny absolutely that their proper use was known and may even have been contemplated for the future. If not, why did not the man who broke up the vessels reduce the coins themselves to bar form?

A general idea of the silver plate may be obtained from PLATES I–VI. One piece—an open silver bowl (PLATE III)—has been successfully reconstructed. The rest remain fragments. There are portions of the rim of a heavy vessel—a fragment of a cover of a box, with ornaments of interlaced triangles, flower and scrolls—a narrow strip, with a series of spirals as its main pattern—a large square piece of very fine workmanship, with ornaments of interlaced chains and square patterns of large star and flower, and small star-shaped flowers with dotted circles in the angles; an irregular-shaped fragment with a bare head to the right—a buckle with flower patterns in centre and lattice-work at the sides, and, finally, some plain bars and other ingots of ‘battle-axe’ shape, two inscribed and one uninscribed. The more important pieces are dealt with in the note by Mr T. D. Kendrick, pp. 44–5.

On the ingots a word may even now be added. The Coleraine pieces were discussed by Heinrich Willers in *Numismatische Zeitschrift*, (1899, pp. 365 ff).<sup>11</sup> He found from analysis that the bars were not of pure silver<sup>12</sup> and noted some irregularity in the lettering and the absence of definite official formulae. He concluded, therefore, that these ingots were made unofficially by private workmen in their ‘officinae’, but were probably tolerated as fit to take the place of official products. The ‘Patricius’ of one ingot (PLATE VI, 1)—a good fifth-century name—

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<sup>9</sup> Cp. especially the Terling hoard, quoted above, and the South Ferriby hoard (*Num. Chron.* 1935, pp. 254 ff). Ridgeway’s argument in the paper, quoted above in n. 8, rested partly on the supposed Continental origin of the hoard.

<sup>10</sup> Perhaps it is wiser not to make the assertion quite as confidently as does Mr Scott Porter in his original publication (*Ulster Journal of Archaeology*, p. 185).

<sup>11</sup> Cp. also Sir Arthur Evans in *Num. Chron.* 1915, pp. 488 ff.

<sup>12</sup> The silver, however, was only between 1 and 2 per cent. baser than that of bars found in Hanover that were certainly official.

## ANTIQUITY

will have been the owner of a private 'officina' of this kind. The CVR MISSI of the other inscribed ingot (PLATE VI, 2) must, according to Willers, represent a proper name. But the analogy of the inscription on a gold bar recently found in Siebenburgen,<sup>13</sup> CVR THESS IN ARC AVR OB PROB ET SIGN, where CVR THESS is read as 'curator thesauri sacri', suggests a similar rendering for CVR MISSI here—'curator missionum' (?). A technical use of 'missio' or similar word to mean, perhaps, 'issues', is not attested, but is surely not impossible. The point seems to be that 'curator' has an official sound and that the possibility of its use on one of these bars forbids us to be very sure that the bars are unofficial. The fineness of the silver and the quality of the lettering may not have been uniform in all parts of the Empire; the shape of the bars is correct for official bars of silver. Bars of this kind were produced, it seems, not only at mints striking coin, but at other centres of financial administration, for example, at Londinium in the fourth century A.D., and we are at liberty to imagine that the robbers of our hoard may have swept into their net scraps from the last remaining stores of Roman administration in the West.

At this point, having faintly suggested an entanglement of the problems of our hoard with the general problems of the Roman departure from Britain, we may hand over Coleraine to the next relief of research.

### NOTE ON THE SILVER, by T. D. KENDRICK

The decorated fragments in this hoard represent a far less magnificent collection of silver vessels than that in the Treasure of Traprain, and do not illustrate to the same extent the wide range of Late Antique ornament that the silversmiths of the period were accustomed to use. There are, for example, only two fragments (PLATE V, left) of silverware that bore figure-subjects, one showing a head of a satyr in relief, and the other the arm and shoulder of a vigorously moving body. The rest of the decoration is very ordinary—typical geometrically conceived patterns with an ostentatious regularity and symmetry. The fragment of the dish (PLATE V, right) with the square panels containing an acanthus spray and an all-over compass-pattern shows the flat and rather insipid quality that much of this work possesses. The simple guilloche that surrounds these panels contributes to the effect of a close carpet-like spread of ornament, and it is plain enough that we have here a decorative system that had for a long time been thoroughly established

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<sup>13</sup> G. Elmer in *Numismatičar*, Belgrade, 1935, p. 19: the find-spot is not certain.

## THE COLERAINE HOARD

in Roman art by the designers of textiles and mosaic pavements. The small fragment with the familiar device of the interlocked triangles in a medallion (PLATE IV, left) belongs to the same series of 'pavement' patterns and represents a style that was freely used throughout the whole Empire. On the other hand, pieces that have more of a west European character are the handle (PLATE IV, top) and the strip with the scalloped edge and panelled spiraliform scroll (PLATE IV, right). This last, which has much of its original gilding left and is nielloed, shows the deep and sharp-angled relief of the so-called 'chip-carving' technique, and it belongs to a variety of late Roman metalwork that was the source of a well-known barbaric style of the early Migration Period. The fragment in the Coleraine hoard is closely allied to several gilt and nielloed silver mounts that occur in a purely German context, for example at Nydam, and this hard spiraliform scroll passes almost directly on to Teutonic ornaments like the early Saxon equal-armed brooches and buckles. The handle belongs to the same school of silverwork, and it is chiefly interesting for the stamped ornament at each end, which is also to be connected with 4th and 5th century work abroad on the western limes. The finest surviving ornamental piece, the silver bowl (PLATE III), represents yet another decorative style in which thin-line devices such as dotted rings, chequered lozenges, star-patterns, and formal plant-scrolls, are arranged in an open free-style order. This, like the chip-carving pieces, has a north-western character, and may very well be, like them, of Romano-British workmanship.

The effect of these types of Late Antique ornament on the subsequent art of the British Isles is not of very great importance, and it concerns mainly the Saxon series of antiquities of the 'chip-carving' kind, on which are rosettes and scrolls and niello-work that are directly based on the Late Roman style. It is true that simple compass-pattern designs such as the rosette (PLATE IV, top) and the quatrefoil pattern (PLATE V, right), which were already of great antiquity, survived in the Celtic lands for a long time after the Roman Period, particularly in Ireland where they remained in use until at least the 8th century. But we can scarcely posit, even for Ireland, any phase of considerable duration in which the Late Antique ornamental style alone prevailed. On the contrary, the main achievement of the early Dark Ages was a complete transformation of this style, a rejection of the staid and symmetrical regularity of the Roman patterns in favour of the whirling, rotating, and lively Hiberno-Saxon designs.



# Vasa Samia

by F. O. WAAGÉ

IT appears to be necessary for the human mind to temper the rigours of the scientific method with certain irrationalities. In archaeology, terminology usually performs this function of safety-valve, as witness the treatment of Greek place-names or the use with 'B.C.' of the ill-matched 'A.D.', especially in the monstrosity 'such and such a century A.D.' When these aberrations cause no confusion of meaning, the logical mind can only hold its breath and swallow hard, knowing that reform is hopeless, but when they lead to equivocation and thereby violate the primary rule of scientific terminology, no protest can be too emphatic.

It is against the use of such a term, often employed by students of Roman pottery, that the writer wishes to present a protest in the form of a new definition. One may think first of the word *sigillata*, so frequently written as a labour-saving substitute for the phrase 'red-glazed Roman pottery' or 'good Roman ware'. Of course only a minority of the pots thus dubbed are *sigillata* in the ancient and actual meaning of the term, but its misapplication is so generally accepted that no confusion results. Entirely different is the case of the equally common and practically synonymous phrase *vasa Samia* or its English equivalent. Here not only is the phrase wrongly used in the light of its common ancient meaning, but it is wrongly used in the light of the modern discovery of the genuine Samian ware. Let the facts be presented forthwith.

## THE LITERARY EVIDENCE

The occurrences of the phrases 'Samian vases, pottery', etc., in Latin literature are more frequently referred to than read. Their ancient significance, however, can be determined only by consulting all the texts which, accordingly, are assembled (see appendix, p. 54) in as great fullness as the problem demands.

The sources fall clearly into two groups, on the one hand the strictly literary, in which the mention of Samian pottery is secondary and casual (I-X, XII-XIV, XVI), and on the other hand the descriptive (XI, XV, XVII, XVIII) in which it is purposeful and a primary subject of

## VASA SAMIA

discussion. From the date and manner of the literary references and from the contents of the descriptive references, the following conclusions can be drawn :

1. The first significant fact is that in every literary text, a substitution of the word 'Samian' by the word 'clay' will not only fail to obscure the pertinence of the allusion but in several instances will clarify it. In five of the nine earliest references, the context, by stressing the meanness of the ware or the poverty of its owners, opposes the term 'Samian' vases to the unexpressed but immediately apprehended counter-thought 'metal' vases. This opposition is quite evident in II, IV, V, IX, and X, and it becomes specific in VII with the actual mention of silver service. In the past, students have usually quoted two of the texts from Plautus (I, III) alone, but alone they encourage a wholly erroneous interpretation of the word ; when read in the light of even the other Plautine verses its true significance is revealed. The modern supposition that Samian vases were of fine, thin and fragile ware is directly contradicted by the several deprecatory passages (IV, V, IX, XIV). Nowhere is there implied a contrast between different kinds of pottery ; always is there a reference to the common nature of all pottery or to its inferiority in comparison with metal ware. In the case of the Gauls (VI, XII, XIII), for instance, the notable fact is not that they used a particular kind of *testa*, but that it was of clay ; to emphasize the very inappropriate material of the instrument the writers employ a redundancy, *Samia testa*, that is 'clay potsherd'.<sup>1</sup> It is unnecessary to press a conclusion which the reading of the references leaves sufficiently clear. 'Samium est testeum', says Nonius ; more or less than that it was not. It is possible, therefore, to make this statement of fact :

As early as the beginning of the second century B.C. the adjective *Samius* had become established in Latin speech and literature as a cliché with the meaning 'clay', and it continued to be so used throughout antiquity to emphasize the peculiar qualities of earthenware vessels and their lowly nature in contrast with metal vases.

2. The second significant fact is that the only independent descriptive source, Pliny the Elder, mentions Samos as a producer of

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<sup>1</sup> By the time of the later Empire, the pleonastic nature of this particular phrase had been forgotten and 'Samian' was interpreted de novo as 'sharp', witness Nonius, 'Samium rursum acutum' (xv). This common-sense explanation may have been inspired by the ancient use of a *Samius lapis* for polishing metal (Pliny the Elder, *Historia Naturalis* xxxvi, 21 (40), 152).

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tableware (xi). The word used is the adjective *Samia* but the context leaves no doubt that here it has full geographical value and cannot signify merely 'clay' as it does, for instance, when Pliny quotes the stock phrase in mentioning the Galatian *Samia testa* (xii). Furthermore, Pliny specifies that Samian ware was esteemed 'etiam nunc' and that the other wares 'retinent hanc nobilitatem', whereby the Samian is definitely credited with a long history and with priority over the other wares. It is possible, therefore, to make this second statement of fact :

In the third quarter of the first century after Christ, pottery table-service of praiseworthy quality was being manufactured on Samos and exported to Italy, where it had already been known for a considerable but undefined extent of time, although at least before the manufacture of Arretine ware, which began, as we know, in the second half of the first century B.C.

These two statements exhaust the possibilities of definite conclusions to be drawn from the texts. Any further deductions must necessarily be somewhat speculative, but inasmuch as several important questions remain without factual clarification, their possible resolution must receive mention.

3. (A). The early use of 'Samian' as a popular synonym for 'clay' has suggested that it was a borrowing from the Greek. The fact that the expression has not been recorded in Greek literature by no means completely invalidates the suggestion in view of the possibility that the usage may have been a very local one. This, of course, would not explain its origin but merely shift the scene of action, probably from central to southern Italy. (B). The second quotation from Isidorus (xviii) records the opinion of some writers that Samian pottery took its name from a clay called 'Samian' found near Rome. While regretting the loss of the original source, one can credit little authority to an explanation which raises more problems than it settles, viz., the date and consequent validity of the source, the existence of an Italian clay bearing a Greek name and the possibility that the clay was named from the pottery rather than the reverse. (C). In modern times it has been suggested that Isidorus wrote 'Samnite' and not 'Samian', the latter thereby being explained as a corruption of the former; some manuscripts give *samina*. But the Latin of 'Samnite' is *Samnis*, *-itis* or *Samniticus*, of which only the least used case and number of the first form could possibly suffer corruption to *Samnius*. This suggestion, based upon the double error of the erroneous reversible equation

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'Samian' = 'Samnite', may be discarded permanently. (D). Pliny's first reference (xi) gives the specific information that pottery from Samos was in use at least as early as the first century B.C. The litterateurs from the beginning of the second century B.C. consistently use the word 'Samian' to describe vases as being merely of clay. There is no acceptable explanation of the origin of the word 'Samian' in this literary usage except that it is the adjective of 'Samos'. Since only one Samos, the large Aegean island, can come into consideration, the literary use of 'Samian' = 'clay' must be a derivation from the normal use of 'Samian' = 'of Samos' and it must have originally described pottery exported from the island of Samos. It is possible, therefore, to make this statement of probability : as early as the second half of the third century B.C., the island of Samos was exporting a specific pottery ware to Italy which was naturally known as Samian ware ; for certain reasons, however, either in Greek southern or Latin central Italy, the Samian vases were regarded as offering the clearest contrast to metal vases so that the term 'Samian' finally came to mean simply 'clay' in common parlance ; in that meaning it was used by Roman authors from the beginning of the second century on, whereas the Samian pottery itself continued to be imported at least into the second half of the first century after Christ.

4. Why did 'Samian' = 'of Samos' become 'Samian' = 'clay' ? The reason must have been one which made the earthen material of the ware particularly prominent ; fine quality alone could not do so for this would contrast merely with other clay vessels. Only one kind of pottery fits the case—clay vases which imitated those of metal. It has long been suggested that the *vasa Samia* of literature were Hellenistic moulded bowls (the so-called 'Megarian' bowls) ; the suggestion was inevitable in a generation of archaeologists who, moved by a primitive eye, cherished any decorated or inscribed potsherd no matter how insignificant or worthless and threw the plain, unmarked, but so often far more valuable fragments on the dump. *Vasa Samia*, however, cannot have been exclusively or even predominantly moulded bowls. The limitation to one shape would not have resulted in the use of the general term *vasa* ; the unusual meaning of 'Samian' = 'clay' would not have arisen to mark out only one from among the several wares of nearly identical moulded bowls, and among these several known wares, the excavations on Samos would have revealed the one native to it, whereas in the pottery thus far published there is not one sherd of these elsewhere so common vessels. Indeed the fact that 'Samian' did

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come to mean 'clay' is an excellent indication that the vases were not moulded bowls but plain, wheel-made tableware; both the wares and the numbers of the metallic moulded bowls grew increasingly numerous during the third century wherefore no one ware could have been particularly prominent. Wheel-made tableware, on the other hand, tended to carry on the heavy, fourth-century forms with little if any direct copying of metal shapes; thus a ware which did copy metal vases in pottery table-service would have been conspicuous and very liable to such comparison as could have resulted in its distinctive geographical name coming to be synonymous with 'clay'. Therefore, with the aid of modern knowledge of Hellenistic pottery, it is possible to make this statement of probability: the term *vasa Samia* first designated wheel-made table-service which copied the shapes of bronze and silver vases, and this at a time when such service was not imitated by other pottery wares, whereby the concept 'Samian' was thus sharply contrasted in the popular mind with the concept 'metal', and ultimately came to mean merely 'clay'.

5. The original *vasa Samia* have not been identified in Italy, where, in any case, plain Hellenistic and Roman pottery has been much neglected. It has just been shown that metal imitations are probably to be sought. One may add further, that they probably were covered with black, not red, glaze. Third century pottery was still predominantly black; a little had begun to be partially oxidized to a mottled hue. 'Pergamene' ware seems to have been the only pottery which was so fired as to possess a uniform dark red colour at that time.<sup>2</sup> A red ware would have been cause for comment, above all in Italy, which lagged behind Greek lands in adopting the new colour, and since colour is never alluded to in any mention of Samian vases, it must have followed the prevailing fashion. Vases imitating metal would certainly have followed the age-old tradition of black glaze. Therefore, again with the aid of known Hellenistic pottery, it is possible to make the following statement of probability: the original Samian vases were covered with black glaze and it was only after the phrase *vasa Samia* had become a stock expression for 'clay vases', quite disassociated from the Samian pottery itself, that the colour changed to the red which Pliny's tableware from Samos must have displayed.

So much for the several points of certainty and probability which

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<sup>2</sup> For this ware, see G. W. Elderkin and others, *Antioch on the Orontes 1: Lamps, Pottery, Metal and Glass Ware*, by F. O. Waagé, pp. 68 ff.

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can be drawn from the texts alone or with a little help from modern research. The earliest *vasa Samia*, probably black and metallic, are still unknown. One question remains, are its descendants mentioned by Pliny also unknown? Up-to-date ceramists know that they are not, as can readily be proved.

### THE ARCHAEOLOGICAL EVIDENCE

I. In 1904, R. Zahn published the pottery from Priene in the volume of that name.<sup>3</sup> The largest group of red-glazed Roman pottery formed a distinctive ware characterized by an absorbent light red (orange-red) glaze, a cinnamon-coloured and pronouncedly micaceous clay, a variety of noticeably but not slavishly metallic shapes in which low rather than high feet were the rule, and rectangular potters' stamps bearing Greek names and words. On the bases of the frequent mention of Samian vases in Latin literature, of the occurrence of the micaceous ware at other sites, of the overwhelming predominance of it at Priene and of the extreme proximity of Samos to Priene, Zahn suggested that this was the Samian ware of the Romans. It is indicative of the treatment which plain pottery has received from Mediterranean archaeologists with few exceptions that this logical deduction, as well as Zahn's hypothesis concerning Pergamene ware, was made neither the subject of further study nor the basis of classification for further publications of pottery for over twenty years.

II. In 1929, T. Knipowitsch published Roman pottery from Olbia, identifying the same micaceous ware and following Zahn in calling it Samian.<sup>4</sup>

III. In the same year W. Technau published Greek and Roman pottery found on Samos itself.<sup>5</sup> The excavations revealed that the characteristic micaceous clay was the typical native clay of the island, thereby proving the correctness of Zahn's deduction and adequately identifying red-glazed Samian pottery of Roman date. Later publication of early Greek pottery has further confirmed the identification of this clay as Samian.<sup>6</sup> In view of the literary evidence, the discovery of kilns or wasters will add only the capping stone of proof.

IV. In 1933 the writer published the Samian pottery found

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<sup>3</sup> T. Wiegand and others, *Priene*. Berlin, 1904, pp. 430 ff.

<sup>4</sup> T. Knipowitsch, *Materialien zur römisch-germanischen Keramik* IV, I *Die Keramik römischer Zeit aus Olbia*, Frankfurt a. M., 1929, pp. 12 ff.

<sup>5</sup> W. Technau, *Athenische Mitteilungen* 54 (1929), pp. 48 ff.

<sup>6</sup> R. Eilmann, *Athenische Mitteilungen* 58 (1933), p. 47.

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during the first season of excavation in the Athenian Agora, listing all occurrences of the ware known to him at that time.<sup>7</sup> A few further sites were added in a note to a description of pottery from Antioch and a discussion of some pottery from Beth-Shan, including a few Samian pieces, will appear shortly in the *Quarterly Statement* of the Palestine Exploration Fund, written in collaboration with Professor Howard Comfort.<sup>8</sup>

It is unnecessary to recapitulate the results of these researches but several explanations and additions must be appended. In the first place, none of the Samian pottery published thus far can be dated by external evidence; the Olbia material forms no exception to this, unfortunately, since the evidence is too uncertain and not specific. No piece of Samian is demonstrably pre-Augustan and several of its shapes resemble those of Italian (Arretine) ware of the first half of the first century after Christ. Yet it certainly is the ware of which Pliny speaks and to whose priority over Arretine, among others, he makes definite allusion, so that it is highly probable that some of it goes well back into the first century B.C. Only very careful excavation will clarify the problem. Incidentally, there is no evidence of any significant copying in either direction between Samian and Arretine; similar shapes are due solely to similar metal prototypes, for even where the resemblance is closest, the smoother treatment and low feet of the Samian cups make marked contrast with the sharply ridged features and high feet of the Arretine. Samian vases are never *sigillata* (in the proper, not the common, meaning of the term); none are moulded, all are wheel-made and their only decoration is an occasional double spiral or rosette applied to a flat rim. Samian potters' stamps are rectangular (only a very small number of even the latest pots are stamped *in planta pedis*) and the names or words, with a few rare exceptions, are Greek. Unpublished Samian vases found in graves during Professor T. Leslie Shear's excavations at Corinth show that the ware was imported there at least well into the second century after Christ.

There is one more fact to note, namely, the occasional occurrence of Samian vases fired in a reducing-oven so that the glaze became a uniform glossy black and the clay gray. Samos has produced a large number of such fragments, several have been observed by the writer at Athens and Corinth and it is possible that some black sherds from

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<sup>7</sup> F. O. Waagé, *Hesperia* II (1933), pp. 291 ff.

<sup>8</sup> G. W. Elderkin and others, *Antioch on the Orontes* I, p. 72, note 35.

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Ephesos are also Samian.<sup>9</sup> None of this *terra nigra* is necessarily earlier than the bulk of red Samian ware but its production in an age when red pottery was the rule in Mediterranean lands is highly significant. It can be interpreted only as a survival from the preceding age of black pottery and therefore it not only offers confirmation of the probability that the early Samian ware of Hellenistic times was black, but also furnishes a definite link with the early representatives of the ware.

### CONCLUSION

1. The word 'Samian' was used by Latin writers from the beginning of the second century B.C. as a stock term equivalent to the adjective 'clay', at first especially to emphasize the fragility or the inferiority of earthenware vessels in comparison with those of metal. This popular meaning arose from the circumstance that the ware of Samos, which must have been known in the second half of the preceding century, was exceptional among the usual black tableware of the period in imitating metal shapes and that it thereby caught the focus of all contrast between pottery and metal wares. Accordingly, the common modern use of the term 'Samian ware' to mean 'good, red-glazed Roman pottery' does not follow the common ancient use to mean simply 'clay vases' and so is incorrect.

2. The Samian (here=of Samos) vases which Pliny the Elder says were still employed in his day have been identified, and Samian ware now takes its place in ceramic history as a definite and distinctive ware of known provenience whose Hellenistic products remain to be discovered, but whose representatives of the Roman age are found to occur over a wide area of the Mediterranean. Accordingly the term 'Samian' when applied to pottery must be reserved for this particular ware alone; the modern use of the term as defined above is therefore unqualifiedly erroneous and must be dropped.

3. Since the earliest Samian ware has not yet been identified, it behoves every excavator of a Hellenistic site to give most careful attention to all the plain, black-glazed pottery in an effort to find it. Since the later products of the ware are known, every excavator should identify them and seek for evidence to date them; this obligation does not apply in the Mediterranean region alone, for a ware which reached Nubia in the south and Russia in the east may very well have travelled also to Britain in the north.

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<sup>9</sup> *Athenische Mitteilungen* 54 (1929), p. 48; Österreichisches Archäologisches Institut, *Forschungen in Ephesos* I, p. 175.



# ANTIQUITY

## APPENDIX

- I. PLAUTUS (c. 254-184 B.C.), *Bacchides* II, 2, 22-24 :  
CH. Eho, an invenisti Bacchidem ? PI. Samiam quidem.  
CH. Vide, quaeso, ne quis tractet illam indiligens :  
Scis tu ut confringi vas cito Samium solet.
- II. PLAUTUS, *Captivi* II, 2, 39-42 :  
. . . PHIL. Immo edepol pertinax ;  
Quin etiam ut magis noscas : Genio suo ubi quando sacrificat,  
Ad rem divinam quibus est opus Samiis vasis utitur,  
Ne ipse Genius surripiat. proinde aliis ut credat vide.
- III. PLAUTUS, *Menaechmi* I, 2, 68 :  
ME. Placide pulta. PE. Metuis, credo, ne fores Samiae sient . . .
- IV. PLAUTUS, *Stichus* V, 4, 11-13 :  
Suom quoique decet : quibus divitiae domi sunt, scaphio et cantharis,  
Batiocis bibunt : at nos nostro Samiolo poterio  
Tamen bibimus nos, tamen ecficimus pro opibus nostra moenia.
- V. LUCILIUS (c. 168-103 B.C.), *Satyrarum liber XIII* (5) in Nonius Marcellus IV, 398, 26 :  
et non, pauper uti, Samio curtoque catino.
- VI. LUCILIUS, *Satyrarum liber VII* (21) in Nonius IV, 398, 33 :  
hanc ubi vult male habere, ulcisci pro scelere eius,  
testam sumit homo Samiam atque ibi 'anu noceo' inquit ;  
praeceidit caulem testisque una amputat ambo.
- VII. ANONYMOUS (c. 80 B.C.), *Rhetorica ad C. Herennium* IV, 51, 64 :  
'Apage', inquit, 'aedes commodavi, familiam dedi : argentum quoque vult ?  
Tametsi hospites habeo, tamen utatur licet, nos Samiis delectabimur'.
- VIII. CICERO (106-43 B.C.), *De Re Publica* VI, 2, 2 in Nonius IV, 398, 28 :  
Oratio Laelii, quam omnes habemus in manibus, quam simpuvia pontificum dis  
immortalibus grata sint Samiaeque, ut is scribit, capudines.
- IX. CICERO, *Pro Murena*, 36 (75) :  
Is, cum epulum Q. Maximus P. Africani, patruī sui, nomine populo Romano  
daret, rogatus est a Maximo, ut triclinium sterneret, cum esset Tuberō eiusdem  
Africani sororis filius. Atque ille, homo eruditissimus ac Stoicus, stravīt  
pelliculis haedinis lectulos Punicanos et exposuit vasa Samia, quasi vero esset  
Diogenes Cynicus mortuus et non divini hominis Africani mors honestaretur ; . .
- X. TIBULLUS (c. 54-19 B.C.), II, 3, 41-48 :  
praedator cupit immensos obsidere campos,  
ut multa innumera iugera pascāt ove ;  
cui lapis externus curae est, urbisque tumultu  
portatur validis mille columna iugis,  
claudit et indomitum moles mare, lentus ut intra  
neglegat hibernas piscis adesse minas.  
at mihi laeta trahant Samiae convivia testae  
fictaque Cumana lubrica terra rota.

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- XI. PLINY THE ELDER (23-79 after Christ), *Historia Naturalis* xxxv, 12 (46), 160 :  
maior pars hominum terrenis utitur vasis. Samia etiam nunc in esculentis laudantur. retinent hanc nobilitatem et Arretium in Italia et calicum tantum Surrentum, Hasta, Pollentia, in Hispania Saguntum, in Asia Pergamum. habent et Trallis ibi opera sua et in Italia Mutina, quoniam et sic gentes nobilitantur et haec quoque per maria, terras ultro citro portantur, insignibus rotarum officinis.
- XII. PLINY THE ELDER, *Historia Naturalis* xxxv, 12 (46), 165 :  
Samia testa Matris deum sacerdotes, qui Galli vocantur, virilitatem amputare . . .
- XIII. MARTIAL (c. 38-102 after Christ), III, 81, 3 :  
Abscisa est quare Samia tibi mentula testa, . . .
- XIV. TERTULLIAN (before 160-after 220 after Christ), *Apologeticus* xxv, 13 :  
Frugi religio et pauperes ritus et nulla Capitolia certantia ad caelum, sed temeraria de cespite altaria, et vasa adhuc Samia, et nidor ex illis, et deus ipse nusquam.
- XV. NONIUS MARCELLUS (third-fourth centuries after Christ), IV, 398, 26-399, 2 :  
Samium est testeum. Lucilius *Satyrarum lib.* XIII (5) : see v above.  
M. Tullius *de Republica lib.* VI, (2) : see VIII above.  
Samium rursum acutum. unde et samiare dicimus acuere, quod in Samo (insula) hoc genus artis polleat. Lucilius *Satyrarum lib.* VII (21) : see VI above.
- XVI. THE VULGATE (c. 400 after Christ), *Isaia* 45, 9 :  
Vae qui contradicit fictori suo, testa de samiis terrae : numquid dicet lutum figulo suo : Quid facis, et opus tuum absque manibus est ?
- XVII. ISIDORUS OF SEVILLE (c. 560-640 after Christ), *Etymologiarum* xx, 4, 3 :  
Fictilia vasa in Samo insula prius inventa traduntur, facta ex creta et indurata igni ; unde et Samia vasa : postea inventum et rubricam addere et ex rubra creta fingere.
- XVIII. ISIDORUS OF SEVILLE, *Etymologiarum* xx, 4, 6 :  
Samia vasa quidam putant ab oppido Samo Graeciae habere nomen. Alii dicunt cretam esse Italiae, quae non longe a Roma nascitur, quae samia appellatur.

# Scandinavian Rock-engravings

by GRAHAME CLARK

THE discovery of the cave art of France and Spain did more than anything else to make the ordinary man aware of the immense significance of the discoveries made in the field of pleistocene man during the nineteenth century. In many ways the superior of the conventionally accepted 'art' of the day, the paintings and engravings captured the imagination of people to whom flints and bones meant little. They made real the existence of man in the ice age, and through them men could look into a primitive world, situated not in the distant places of the earth, but close to the centres of modern civilization.

The revelation of the early rock-engravings and paintings of Scandinavia had none of the epic flavour attaching to the discoveries in France and Spain; no polemics raged around the authenticity of finds which already fitted into the modern view of human development. The Scandinavian art can therefore be studied in a clear atmosphere, through which we can discern a world of hunting and of hunting magic.

The engravings belong to two groups—the Arctic group, reflecting a life of hunting and fishing, with which we are mainly concerned; and the Bronze Age group, best known from northern Bohuslän. The Arctic art embraces a number of styles, but it will be sufficient to distinguish two main groups, styles A and B. Style A is remarkable for its simplicity and for its naturalistic rendering of animal forms. The animals are shown severely in profile, all internal features such as eyes or body mouldings being omitted from the design; the effect was in many cases increased by the large scale to which they were drawn, an elk and a whale at Klubba for example exceeding 14 and 20 feet respectively in length. It is evident that the artists were primarily concerned with outlining single beasts or pairs of beasts—only in rare instances is there any suggestion of a scene. Often, therefore, one finds the engravings scattered singly or in pairs, but frequent also are such palimpsests as we recall from the cave art of the west. FIG. 1 illustrates part of the field of engravings at Leiknes, where we see that figures have

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been engraved on a suitable rock-surface without regard to outlines already present. It is perhaps from noting the effects produced by such palimpsests that a peculiar shorthand method of producing a new beast from a pre-existing one was adopted. This trick of adding the head of one beast to the rear of another in such a way as to produce two

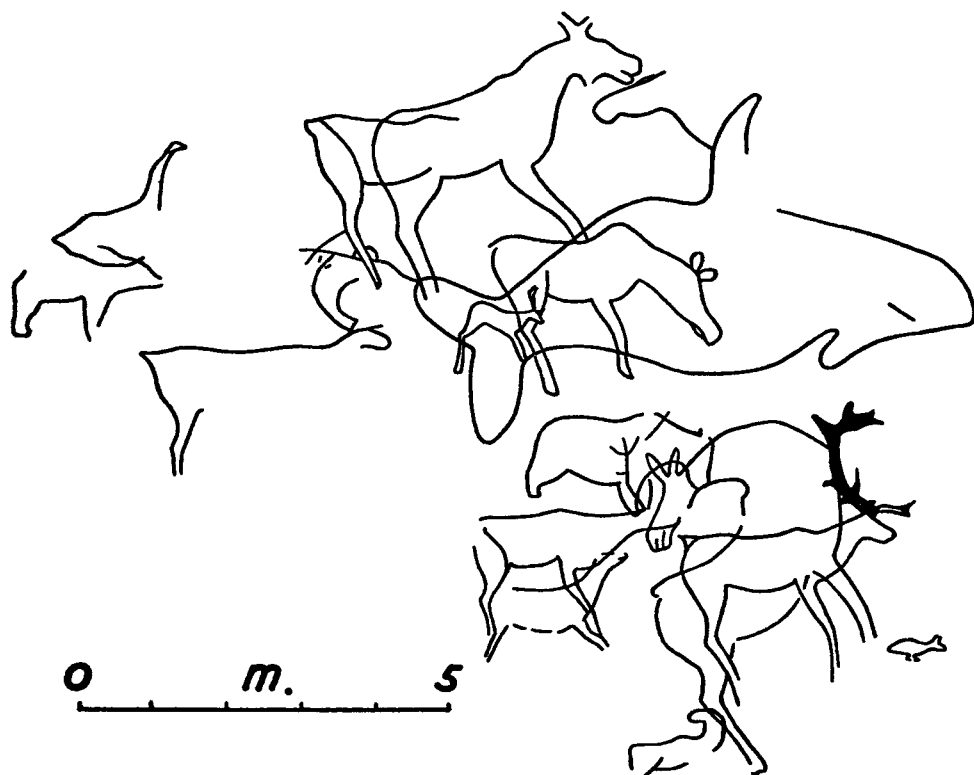


FIG. 1. PART OF THE FRIEZE AT LEIKNES (style A) SHOWING A CHARACTERISTIC PALIMPSEST  
*after Gjessing*

beasts, which is found at Fykanvatn (FIG. 2, B) and Bardal, stresses the fact that the artists were keen to produce an outline of a beast, rather than a picture to be admired.

Although wild animals and men still form the most usual subjects of style B their representation is markedly less naturalistic than in style A. In the east Norwegian sub-group, found in the neighbourhood of Oslo, the naturalistic feeling is certainly stronger than it is at Vingen,

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and still more than at such sites as Bogge and Glösa (PLATE I), where the figures are extremely schematic. In the Oslo group the figures still attain a fair size (see the Åskollen elk, nearly 6 feet across, (PLATE II) but at the other sites the figures have shrunk to insignificant dimensions. In style B as a whole the animals are usually shown with four legs, instead of only two, and the lines of the legs are often carried up directly to join the back bone. A remarkable feature of style B is the frequent occurrence of markings within the outlines of the figures. Sometimes, as at Vingen and in one of the Gjeithus groups, the markings take the form of parallel straight lines or linear chevrons, while at Ekeberg (PLATE III) and Skogerveien they often form a rough net-work dividing the body up into unequal fields; but by far the most interesting markings are those which are generally taken to represent internal organs. These latter are, perhaps, most clearly seen in the pair of elks at Gjeithus (PLATE IV), but they are also found at Skogerveien, and less clearly at Åskollen and Ekeberg. While this feature is most characteristic of the Oslo sub-group it is also found in perhaps degenerate form at Glösa (PLATE VIII, A). Particularly in the Vingen-Bogge-Glösa sub-group the figures are found in fields sometimes of many hundreds, but possibly because of the small size of the figures palimpsests are rare. Yet although we find the figures occurring in large groups there still remains little suggestion of a scene.

In producing the engravings direct incision was possible only where the rock was sufficiently soft and at present it has been recorded only at Hell, a place much frequented by tourists from Trondhjem for reasons quite unconnected with prehistoric archaeology. A second technique, that of grinding into the rock-surface (*schleiftechnik*), is of particular interest because it is only found employed on engravings of style A, thus serving to support the reality of the sub-division made on purely stylistic grounds. The third and commonest technique, that of pecking, by which a line was produced by the junction of a great number of small shallow pits, was occasionally employed on engravings of style A, but exclusively on those of style B, as well as on the later Bronze Age group. Such pecked outlines are often difficult to see, but the technique is well demonstrated by PLATE V, the original of which was taken while the rock surface was still glistening after heavy rain.

The geographical distributions of the various styles differ widely, as reference to our key distribution map will show (FIG. 3). It will be seen that style A is confined to the sea-board of Norway, north of latitude 63, and to a limited portion of central Sweden. Style B, on the other

## SCANDINAVIAN ROCK-ENGRAVINGS

hand, is found, with the exception of an isolated site in the far north, only on the fringes of the area of distribution of style A and in regions further south. Thus considerations of style, technique and distribution

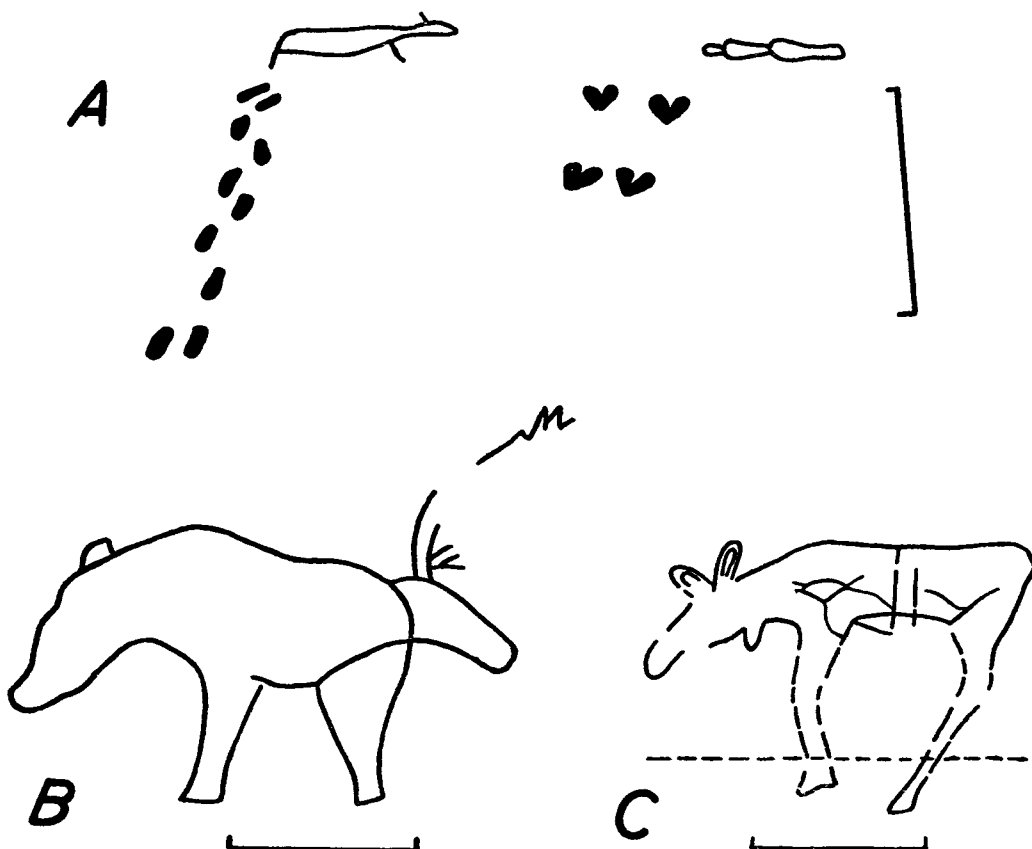


FIG. 2. Scales of one metre

- A. THE HUNTING SCENE AT GÄRDE IN CENTRAL SWEDEN. The scene is viewed obliquely as seen from the ground
- B. AN ENGRAVING IN STYLE A AT FYKANVATN, illustrating the trick by which a second animal was produced by adding a head to the rear of one already drawn
- C. AN ELK (STYLE A) AT LANDVERK IN CENTRAL SWEDEN. Note the band round the middle and the high water level of the lake indicated by a broken line

support the view that in the Arctic art we have to deal with two distinct schools or groups. The interrelations of the two groups can best be dealt with when considering their respective ages.

The content of the engravings, which does not differ significantly

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as between groups A and B, is very simple. It includes only animal forms, human figures, and various signs, including foot-prints and geometrical patterns. The animals represented are, with the exception of a possible dog at Forselv, exclusively of wild species ; they include not only elk, reindeer and bear, but also seals, whales, halibut and water-birds. A feature of several of the engravings of elks, which it is difficult to explain, is the presence of a band around the middle, suggesting some kind of harness ; at Landverk (FIG. 2, c) and at Åskollen the band is indicated by a pair of parallel lines, while at Glösa and Gärde it is shown by a single line. If found on engravings of reindeer the band could be explained as indicating some such harness as the Lapps employ ; on elks it remains something of a mystery. The human figures are, as a rule, very schematic, a good example being that at Ekeberg well seen on PLATE III with parallels at Skogerveien and Tennes, all of which indicate males. At Vingen there are numerous schematic human figures, mostly males (some phallic) but including some women. The famous frieze at Forselv includes a human figure on a large scale and in a more or less naturalistic style ; in this case both arms are outstretched and from one of them hangs a line attaching to the collar of what is presumed to be a hunting dog. One should also mention the schematic human figure at Gärde which forms part of what one can only interpret as a scene of hunting-magic (FIG. 2, A). Associated with this figure is an elk and the footprints of man and elk. Footprints form, indeed, a distinct feature of the art ; thus a single elk footprint is visible immediately above the back of the Åskollen elk in PLATE II. Among the geometrical patterns or signs the commonest are lozenges, sometimes enclosed in a rectangle, sometimes disposed in a line as at Hell, and sometimes engraved singly (FIG. 4) ; the purpose of these signs is obscure, but they always occur in association with animal forms. Finally, we may mention some possible boats in the Forselv frieze, which seem to form part of a fishing scene, and some curious sickle-shaped signs which occur in some numbers at Vingen (FIG. 5). It seems exceedingly unlikely that these latter signs really do indicate sickles, nor is their alternative interpretation as throwing-sticks altogether conclusive ; it is quite probable that their real significance is entirely unconnected with the objects whose form they suggest to us. Indeed it may not be fanciful to imagine that they represent degenerate elk-heads. FIGURE 6 indicates two of the more degenerate elk figures from Vingen side by side with three of the 'sickle-shaped' signs, some of which resemble very closely the heads

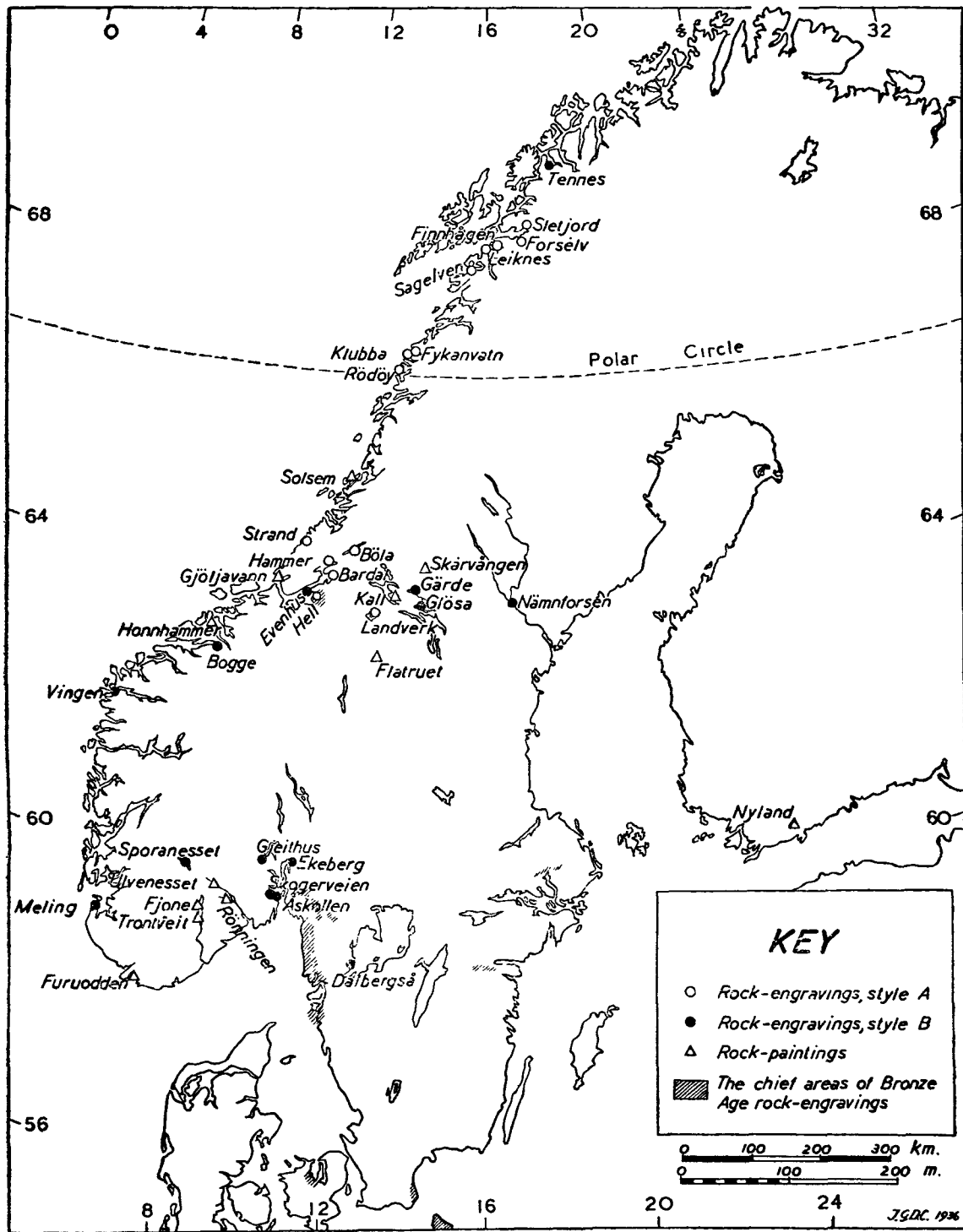


FIG. 3



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and necks of such degenerate figures. Possibly the signs in some way represent elks for magical purposes.

All the evidence that we have so far reviewed, both as regards the grouping of the engravings and their subject matter, suggests unambiguously that the Arctic art is to be explained as a manifestation of hunting magic. Certain of the signs we cannot explain, although even these have their analogues in the cave art of the West, but such an engraving as the Gärde scene with its footprints of the hunter and his victim speaks plainly enough.

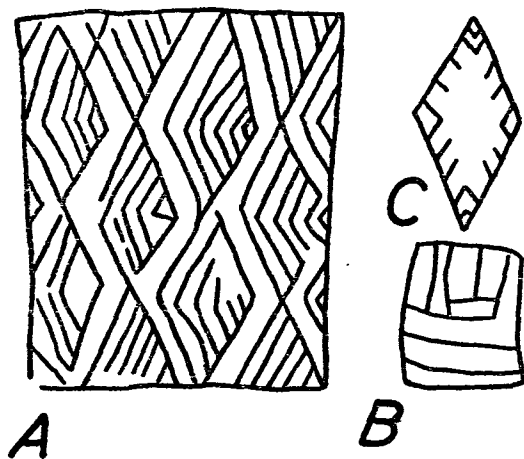


FIG. 4. SIGNS FROM THE FORSELV FRIEZE ( $\frac{1}{10}$ )

*After Gjessing*

The feature of the art most attractive to the visiting archaeologist is the situation of the engravings in the open air, generally in the most beautiful natural surroundings, circumstances which more than compensate for the lack of the mystery attaching to the cave art of the Dordogne or the Pyrenees. The engravings were generally made on rock-surfaces, planed smooth by the movement of gigantic ice-sheets; sometimes the rock-surface lies flat on the ground, but frequently it forms a gentle slope occasionally even approaching a vertical face. Unlike the engravings of the Bronze Age group of southern Scandinavia, which are normally found on the margins of cultivable soil, the Arctic engravings are usually found in wild country, but the most interesting feature of their situation is their intimate association with water.

## SCANDINAVIAN ROCK-ENGRAVINGS

A glance at the distribution-map will show that the bulk of the engravings adhere closely to the coast-line. Indeed some of the most interesting groups, notably those in the neighbourhood of Vingen, are to be found on rock-faces shelving directly into the waters of fjords and can be visited only by boat. In many cases, however, land-movement has left them stranded well above modern sea-level, and where, as in the Oslo group, these are situated in a well developed area, it is possible to visit them quite easily by rail and foot. On the other hand the central

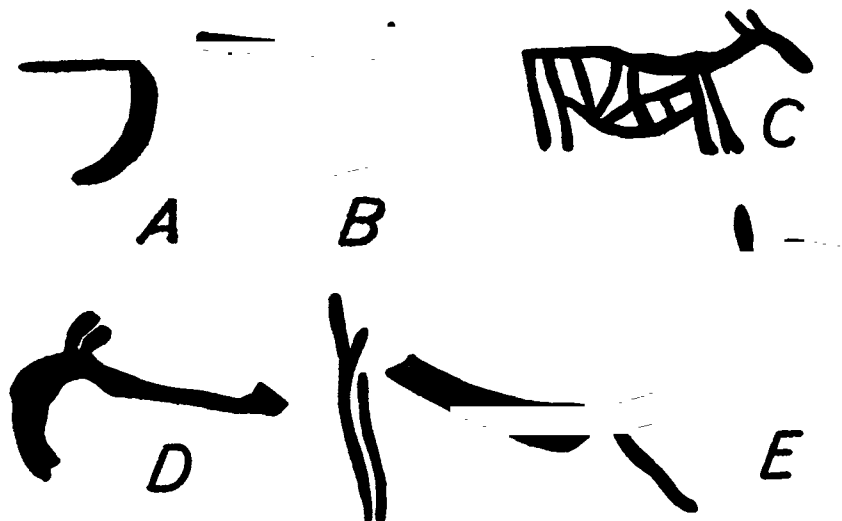


FIG. 5. 'SICKLE-SHAPED' SIGNS AND CONVENTIONALIZED CERVIDS  
FROM VINGEN, NORWAY (190). After BØE

Swedish group is intimately associated with the inland waterways of the area—how intimate is the association one can only appreciate by visiting some of the sites. Travelling north by the Stockholm-Storlien rail-route it is relatively easy to visit the Glösa and Landverk engravings by breaking the journey at Näliden and at Ånn respectively, while by taking the side-line from Bräcke it would not be difficult to visit Nämforsen before continuing the journey north. The Nämforsen engravings, which occur in several groups, are found immediately on the edge of the Ångerman river and on a rocky island situated in the midst of foaming falls and rapids ; they are close to the railway station, but it needs a skilled boatman to reach them all. The situation of the Glösa

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group, which can be reached by a short car run from Näliden, is illustrated by PLATE VI. The engravings can be seen in the right foreground by the edge of a small waterfall tumbling down to the lake in the background. The closer view of the group given by PLATE I shows (the photograph was taken at the end of July) that many of the figures must actually be submerged when the fall is carrying more than a trickle of water. The classic example of association with a waterfall is of course the much illustrated engraving at Böla in the Trondhjem region, but Glösa is interesting for the indication it gives of the season during which the engravings were made. At Landverk we have yet another kind of association with water, for here the engravings are found on a rock-face shelving steeply into the waters of an inland lake (the Ännsjö)—one can indeed only study the figures from a boat unless one is prepared to visit the site when the lake is frozen over. Particular care must be taken, if one wishes to see the whole of the elk figures, not to make one's visit at the time of the spring melting, for at such a season their feet are below the level of the swollen lake. Equally striking in this respect is the situation of the Gjeithus engravings, which are found on glacially smoothed rock-faces sloping gently into the waters of the Dramselva (PLATE VII); in times of spate the engravings are covered by the swirling waters of the river.

The distribution of the engravings and their individual locations serve to confirm the impression that they were the work of tribes subsisting by hunting and fishing: conversely, just as there is no indication of agriculture or of the domestication of animals in their content, so also is there nothing in their situation to suggest that their makers had any predilection for a fertile countryside. The evidence from such sites as Glösa, Landverk and Gjeithus makes it almost certain that the engravings were done during the summer or autumn months, while finds of palimpsests like that at Leiknes show that the favourite sites were frequently revisited. This suggestion of seasonal migration fits in well with the other evidence for the economic status of the people responsible for the art. The association with water may partly be explained by the fact that in such a rocky and heavily forested region as central Sweden and large parts of Norway natural waterways offered almost the only means of transport to early man during the warm months of the year, but one can hardly account for the facts by this consideration alone. One is compelled to the conclusion that some magico-religious motive was at work; for some reason that is obscure to us these hunting folk ground or pecked their engravings as close to water as they could,

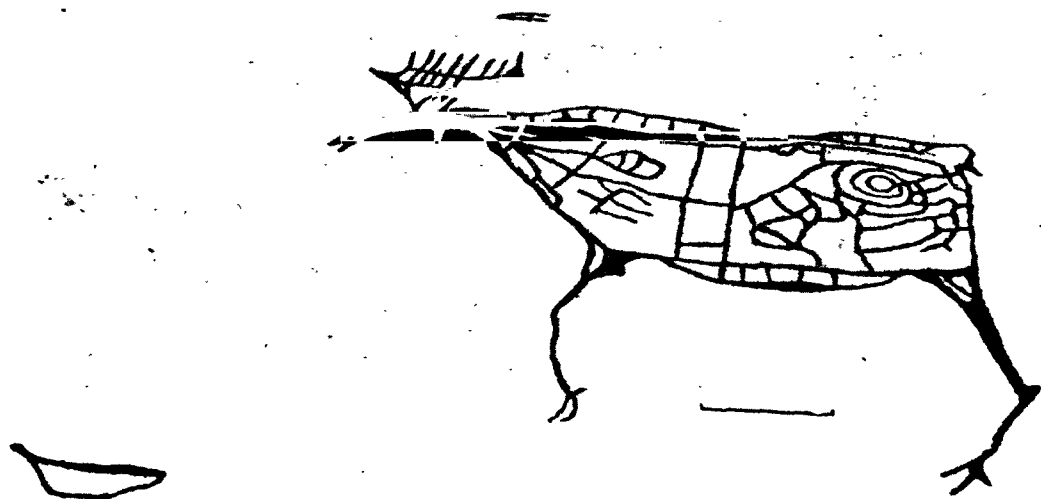
PLATE I



GENERAL VIEW OF THE GREATER PART OF THE FIELD OF PECKED ENGRAVINGS (ARCTIC STYLE B) AT GLOSA IN THE SWEDISH PROVINCE OF JAMTLAND. WATERFALL IN IMMEDIATE FOREGROUND Scale of one foot

ph J. G. D. Clark

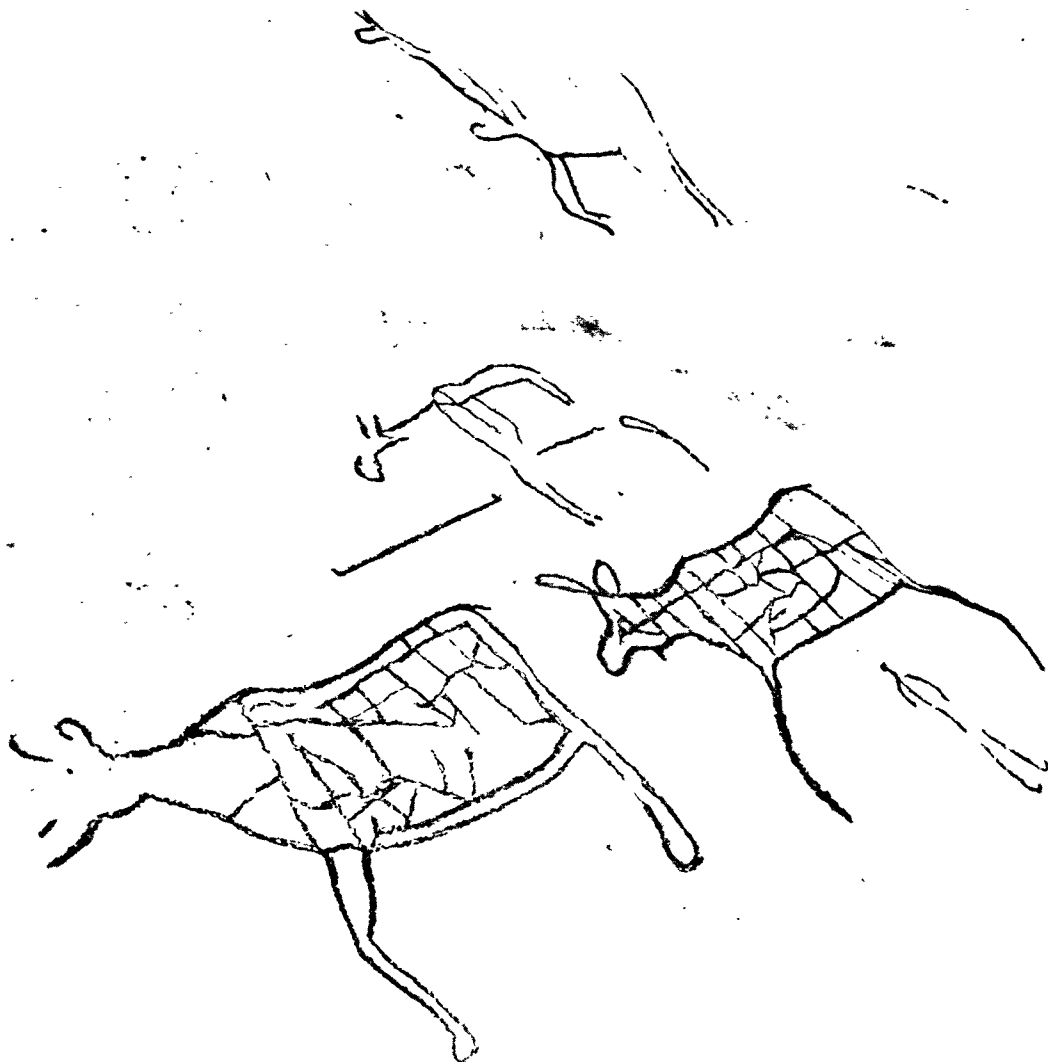
# PLATE II



GROUP OF PECKED ENGRAVINGS (ARCTIC, STYLE B) CONSISTING OF AN ELK (ALREADY 6 INCHES ACROSS), THE FOOTPRINT OF AN ELK, AND A BIRD, AT ASKOLLEN SOME 56 METRES ABOVE DRAMMEN FJORD, S.E. NORWAY.  
CHALK HAS BEEN RUBBED INTO THE PECKED AREAS. Scale of one foot

ph. J. G. D. Clark

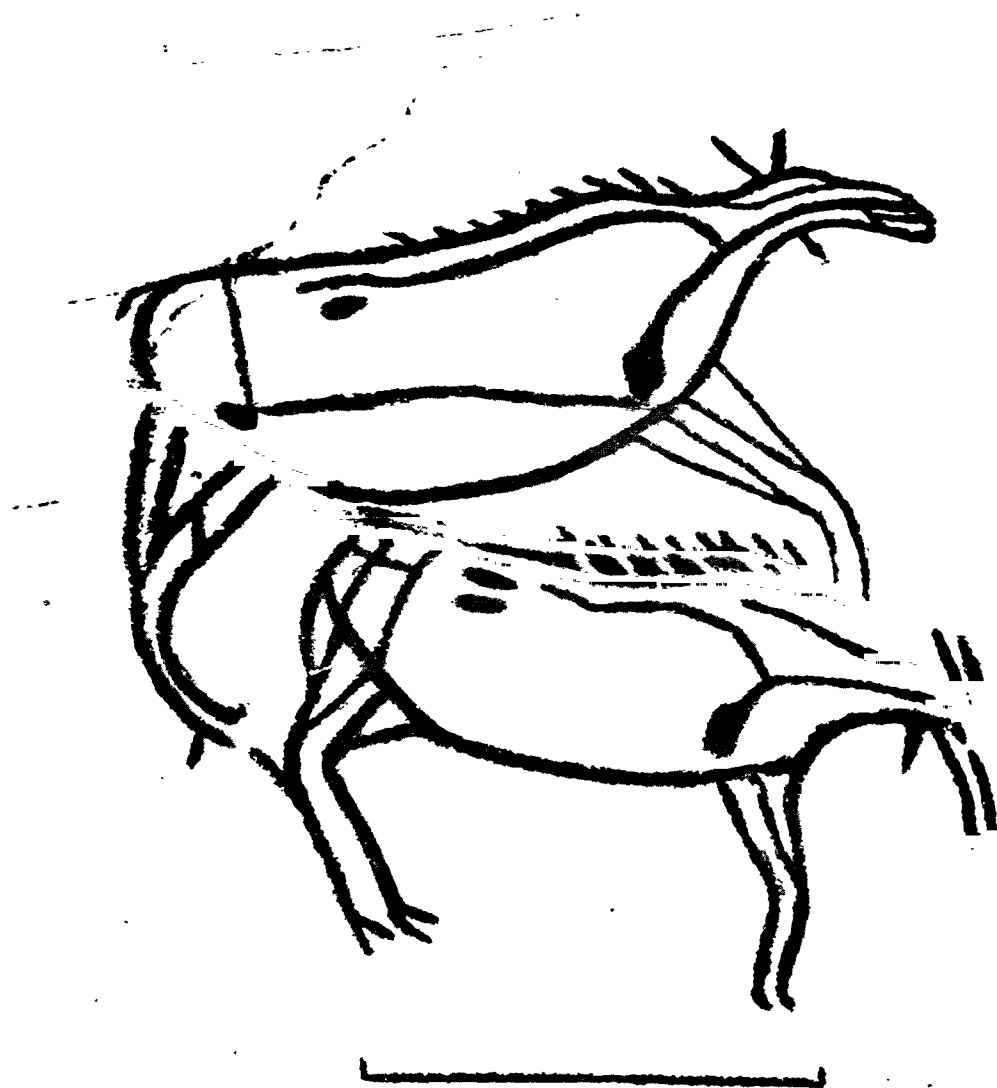
PLATE III



THE GREATER PART OF THE FIELD OF PECKED ENGRAVINGS (ARCTIC, STYLE B) ON GLACIALLY SMOOTHED ROCK AT TIK-ELI RG, 54 METERS ABOVE OSLO FJORD. THE PECKED LINES HAVE BEEN CHALKED AT DUSK BY TORCH-LIGHT. Scale of one foot

ph J. G. D. Clark

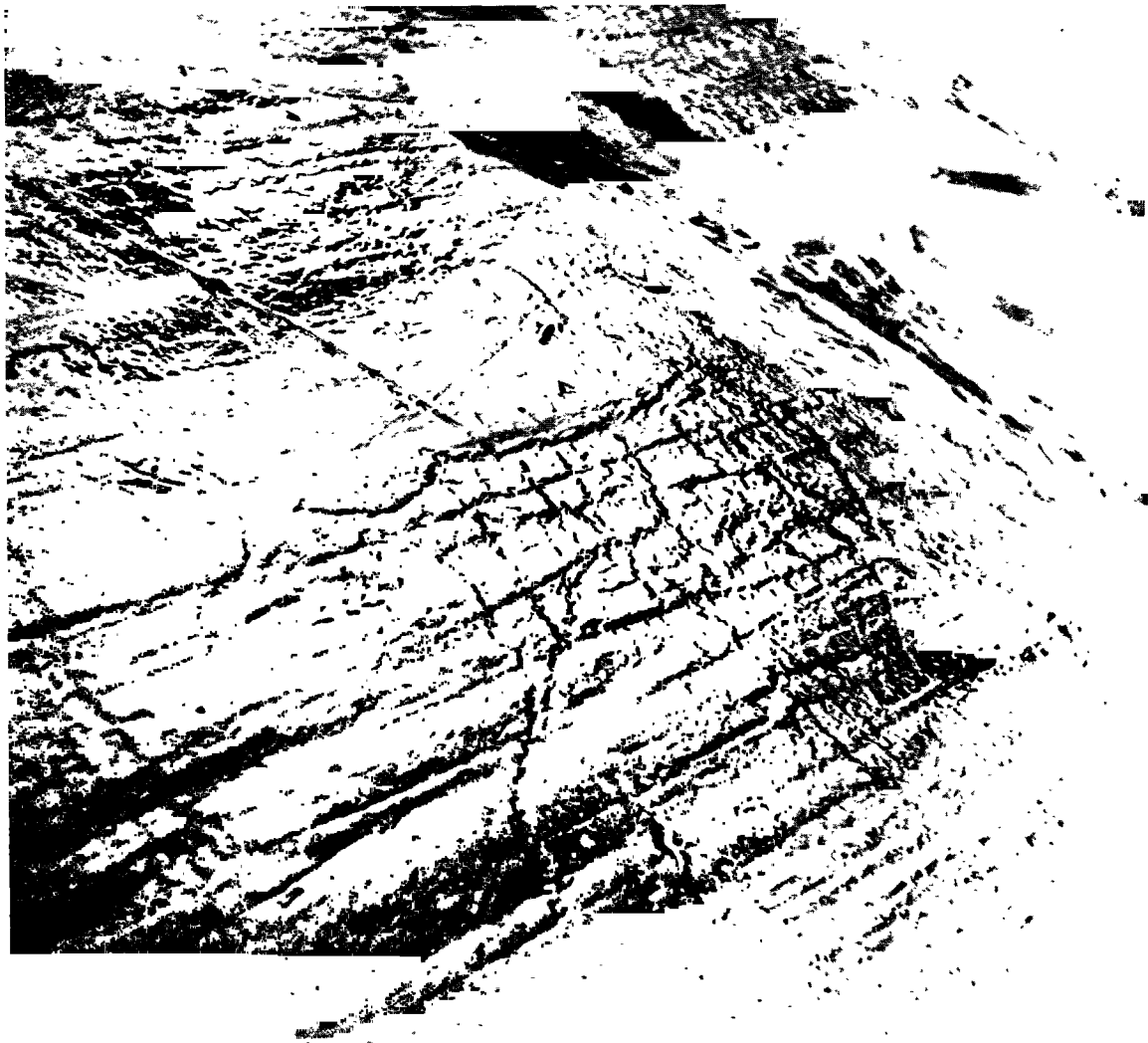
PLATE IV



PAIR OF LLKS IN PICKED TECHNIQUE (ARCTIC, STYLE B) AT GJEITHUS, S.E. NORWAY. NOTE THE PECULIAR  
INTERNAL ARRANGEMENTS INDICATED. Scale of one foot

ph J. G. D. Clark

PLATE V



ROCK-ENGRAVING (ARCTIC, STYLE B) IN PECKED TECHNIQUE AT EKTBERG NEAR OSLO

The engraving is barely visible in sun-light, but can easily be seen when the rock is glistening with rain, as when this photograph was taken. Alternatively the outline is visible at night by the use of artificial light.

*ph.* J. G. D. Clark



PLATE VI



GENERAL VIEW LOOKING DOWN THE WATERFALL AT GLOSA TOWARDS THE LAKE. SOME OF THE ENGRAVINGS  
ARE JUST VISIBLE ON THE SMOOTH ROCK (RIGHT FOREGROUND)  
During the spring melting most of the engravings are covered by the rush of water  
*ph. Mrs Clark*

PLATE VII

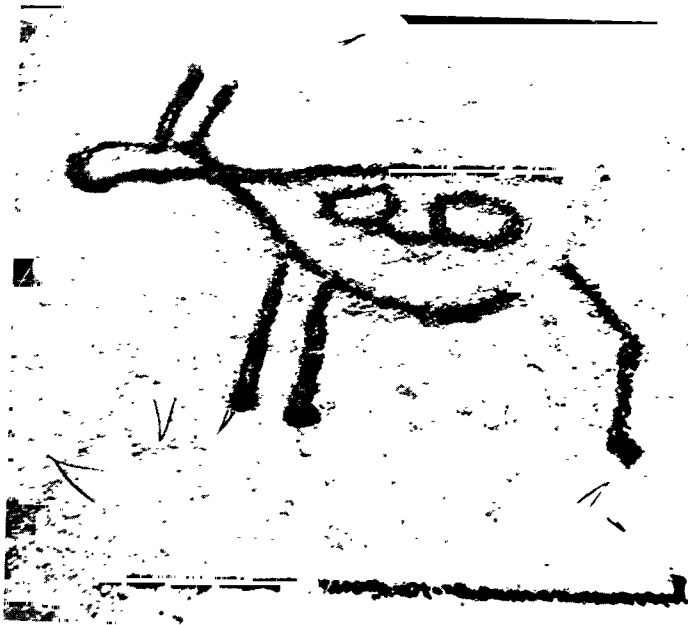


GENERAL VIEW SHOWING THE SITUATION OF THE PAIR OF ELKS AT GJEITHUS ON A GLACIALLY SMOOTHED ROCK SURFACE SHELIVING OBLIQUELY INTO THE RIVER DRAMSELVA WHICH AT SOME SEASONS COVERS THE ENGRAVINGS COMPLETELY

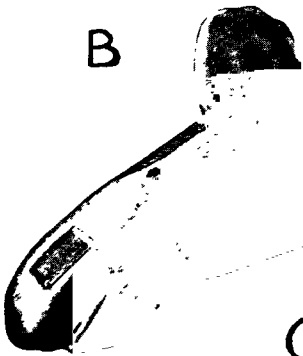
*ph.* J. G. D. Clark

# PLATE VIII

A



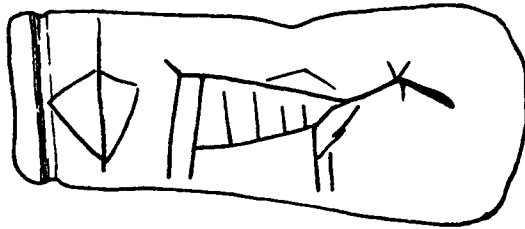
B



C



D



- A. A SCHEMATIC CERVID AT GLOSA, SHOWING DEGENERATE REPRESENTATION OF INTERNAL ORGANS. Scale of one foot  
*ph J G D Clark*  
 B. STONE AXE WITH ELK-HEAD TERMINATION FROM ALUNDA, SWEDEN Scale  $\frac{1}{2}$   
 C. SLATE KNIFE WITH ELK-HEAD TERMINATION FROM NORTHERN SWEDEN Scale  $\frac{1}{2}$   
 D. SLATE PLAQUE WITH SCHEMATIC ENGRAVING OF AN ELK FROM GASTRIKLAND. (After Rydli) Scale  $\frac{1}{2}$

## SCANDINAVIAN ROCK-ENGRAVINGS

whether by river, fjord, waterfall or lake-side. Their hunting luck seems to have been bound up with something inherent in the water—more than that one cannot say.

Direct evidence for dating the engravings is excessively rare. In western Europe the upper palaeolithic art has been dated by finding cultural deposits heaped up against the engravings and sculptures on the cave walls, as well as by recovering small loose works of art from the deposits themselves ; moreover the sequence of styles has been defined and verified by the study of numerous palimpsests or superpositions. In Scandinavia, where the engravings are in the open, such direct

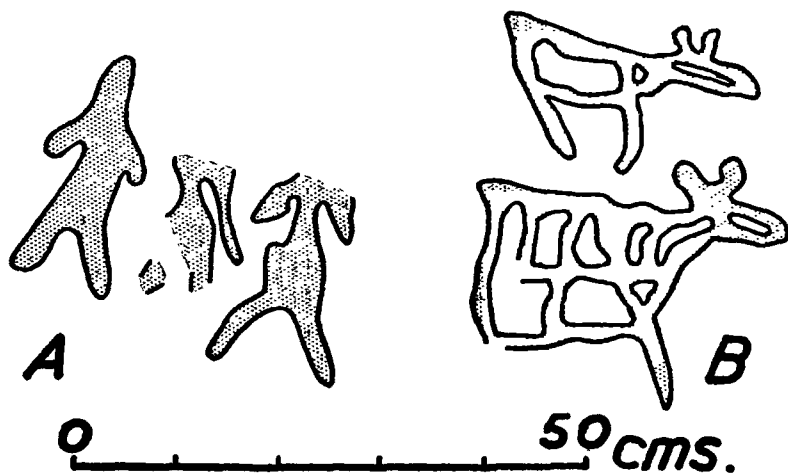


FIG. 6. ROCK-PAINTINGS FROM RÖNNINGEN (A) AND FJONE (B), NORWAY  
showing human figures and elks, the most characteristic subjects  
*After Engelstad*

methods of dating are obviously impossible, nor do the palimpsests help to the same extent in determining the sequence of styles. Certain lines of indirect evidence do, however, afford some indication of the antiquity of the art, and these must now be examined.

The coastal situation of many of the Norwegian engravings makes it possible to date them geologically in terms of post-glacial land-movement. It is well known that after an initial submergence, due probably to a lag in isostatic recovery, Norway underwent an almost continuous elevation from the sea as the weight of the dwindling ice-sheet diminished, and it is therefore obvious that archaeological sites within the areas uncovered by the sea can be related to different stages

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in the geological process. But, since the successive strand-lines marking the stages of emergence have been closely correlated with archaeology by the excavation of dwelling-places at different levels, it will be clear that engravings dated in terms of land-emergence can also be dated in terms of archaeology. There are of course certain limitations to this line of evidence, which must be stated before considering the results. First of all it will be appreciated that the relation of the engravings to sea-level can tell us *only their maximum age*; we can say for certain that engravings were not made when the sea stood at a level which would cover them, but it is not possible to say at what height above contemporary sea-level the engravings were made, or in other words how young they may be. Secondly, the results which W. C. Brøgger obtained in the Oslo region in the correlation of early dwelling-places and ancient strand-lines cannot be applied to the very extensive sea-board of Norway as a whole. In certain parts near Bergen, for example, other correlations have been made, but further north even the maximum dating of archaeological sites by this means must remain rather vague until more work has been done. Yet certain conclusions have emerged by following up this line of enquiry :

- (a) On the western coast of Norway style A engravings are normally found at higher elevations than style B.<sup>1</sup> This suggests that rock-surfaces available during the dominance of style B were still under water while the style A engravings were being made at higher levels.
- (b) The more naturalistic sub-group of style B in the Oslo region ranges between 53 and 70 m. above modern sea-level.<sup>2</sup> According to W. C. Brøgger the Nøstvet culture flourished while the sea fell from 70 to 45 m. It is therefore certain that the engravings cannot be older than the Nøstvet culture, which was contemporary with the earlier stages of the Ertebølle or kitchen-midden culture of Denmark.
- (c) On the basis of the archaeological-geological correlations made by Kaldhol in the Nordfjord region of west Norway the Vingen engravings belonging to the more schematic sub-group of style B cannot be older than the latest kitchen-middens and the earliest dolmens of Denmark.

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<sup>1</sup> e.g. Style A : Bardal, 42m., Böla, 66m., Fykanvatn, 95m., Klubba, 55m., and Sagelven, 44m. Style B : Bogge, 22m., Evenhus, 32m., and Vingen 8½m.

<sup>2</sup> Thus Åskollen at 56m., Ekeberg at 54m., Gjeithus at 53m., and Skogerveien at 70m. above modern sea-level.

## SCANDINAVIAN ROCK-ENGRAVINGS

The geological evidence has helped materially in determining the sequence of styles ; it is clear that style A preceded style B, and that within style B the Oslo sub-group may well be older than the Glösa-Vingen sub-group. This development from naturalistic to schematic representation accords with the impression one had gained from observing the engravings themselves, but without some such confirmation it is highly dangerous to determine the direction of the development of an art-style or a material culture-type. As to the age of the engravings maximum limits have been set to both sub-groups of style B, which make a high antiquity even for style A extremely unlikely. To this one might add that the site of the style A engraving at Landverk in central Sweden was not uncovered by the Scandinavian ice-sheet until late in the Fini-glacial retreat stage.

Archaeological evidence even of an indirect kind is very scanty. There is of course the well-known superposition at Bardal, where elks in the naturalistic style A are overlaid by ships and other motives in the characteristic Bronze Age style, but apart from some difference in the weathering of the two sets of engravings there is no indication of the length of time separating them. There are, however, a few finds of small objects with animal engravings which help to date the rock-engravings. These include a bone pendant from the Stavanger region, engraved with a crude but more or less naturalistic elk or stag, which was found in association with a coarsely barbed bone point of a type which persisted in this region well into the Bronze Age. A second find to be noted is the grooved slate object illustrated by PLATE VIII, D, near which was found a slate point of the Arctic dwelling-place culture ; it is important to observe in this engraving that both the back legs of the animal are carried up to meet the backbone, a feature which is absolutely characteristic of the Glösa-Vingen sub-group of style B.

No mention has yet been made of the paintings, which are found in much the same areas as the engravings of style B. The paintings are carried out in a red pigment and nearly always represent schematic human figures, often accompanied by elks or cervids of some kind (FIG. 6). The elk figures often show the internal markings characteristic of style B. The paintings are usually protected by over-hanging rocks, but at Solsem they occurred in a cave. It is of great interest that the schematic human figures which form the subject of the paintings were revealed only by the removal of a deposit which yielded a bone figurine of a bird of east Baltic affinities and a slate arrowhead of the Arctic dwelling-place culture.

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By whom were the engravings and paintings made? Obviously by hunting and fishing tribes who occupied those regions of Scandinavia in which the art is found. The only possible candidates are the folk of the Arctic dwelling-places and the newly discovered people who made the Komsa (Finnmarkian) and Fosna stone industries; but the latter have no real claim for consideration as the authors of the art we have described. Quite apart from the fact that there is every reason for thinking that the Komsa and Fosna cultures reached Scandinavia at a period long anterior to the appearance of the art, there is the strongest positive evidence for connecting the Arctic art with the Arctic dwelling-place culture. It is significant that not only do both the small plaques with animal figures that we cited in connexion with the rock-engravings attach to the dwelling-place culture, but a slate arrowhead of a type absolutely characteristic of this culture was associated with the paintings in the Solsem cave. Moreover an aptitude for the naturalistic representation of animals is one of the primary features of the Arctic dwelling-place culture from the Scandinavian peninsula far away into Siberia. This aptitude was expressed in animal-headed stone maces and axe-heads (a magnificent example of which is illustrated by PLATE VIII, B), in slate knives with animal-head terminations (PLATE VIII, C), in wood carving (*e.g.* the elk-headed wooden ladle from Laukaa, Finland), in such bone-work as the Gullrum comb, in plastic clay modelling (*e.g.* the Åloppe elks), and even in such famous bronzes as the Seïma dagger from Russia. The animals, which form the subject of the art, were elk and bear, the big-game of the region, and there seems little doubt that the sculptures, like the engravings and paintings themselves, were connected with hunting magic. There seems to be no reasonable doubt that the rock art of which we have written was the work of the Arctic dwelling-place folk, who flourished during the period of the Megaliths in southern Sweden and Denmark.

In conclusion a word must be said about the relations of the Arctic art and the Bronze Age rock art of Scandinavia. As our map shows the Bronze Age group stretches south of the area of the Arctic art, but there is a strong geographical overlap between the two represented largely by stray finds in southwest Norway and central Sweden, which are not shown on the map. The economic basis of the Bronze Age engravings contrasts strongly with that of the Arctic art; the engravings are often placed close to cultivable soil and they feature plough scenes and waggons drawn by domestic animals, obviously reflecting an economy in which food-production played some part.

## SCANDINAVIAN ROCK-ENGRAVINGS

Clearly there are many elements in the art which came in with the new economy, but it seems difficult to believe that there is no connexion between these two Scandinavian art groups. There is in the rock-engravings of Bohuslän a feeling for animal drawing that may indicate some continuity with the Arctic art, but it must be confessed that this is slight: the economic backgrounds of the two art-groups were too opposed for any continuity of tradition to be easily discerned.

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### Addendum

Shortly after this article appears both volumes of Hallström's *Monumental Art of Northern Europe from the Stone Age* will be published in Stockholm (the second volume is announced for April). Here the reader will find a detailed account and, in particular, a series of magnificent illustrations of the art published by its pioneer discoverer. My wife and I are much indebted to Hallström for helping us with our visit to the Central Swedish group of engravings.



# The Mother-Goddess of Gandhara

by MAJOR D. H. GORDON, D.S.O.

IT is forty years since Alfred Foucher carried out his archaeological mission in Gandhara\* and, while it cannot with justice be said that the area has been archaeologically neglected ever since, there are points connected with material culture, art and religion that cry out for attention. When Foucher conducted his investigations he based these on the itinerary of Hiuan-tsang and he was searching for Buddhist relics. Unfortunately he saw stupas and monasteries in every mound, and in fact stated that ' chaitya ' (sanctuary) and ' dheri ' (mound) were synonymous, this largely because Hiuan-tsang had said that there were about a thousand monasteries between Peshawar and the Indus.

Since the time of Foucher there has been but little excavation in western Gandhara. The work of Marshall and Vogel at Charsadda in 1903 and of Spooner at Sahri Bahlol and Shah-ji-ki-Dheri was undertaken as a check on Foucher, and to determine if possible the sites of such famous erections as the Kanishka Vihara and the Stupa of the Eye Gift, and in fact it is only in the most recent times that anyone has seen beyond the length of a Graeco-Buddhist nose. Recent excavations in India and countries on her borders have produced new problems and a fresh set of interest values ; and though it is not to be denied that there are problems outstanding as regards the true source of western influence apparent in the Indo-Afghan art of Gandhara, now, consequent on the discoveries in the Indus Valley, it is to the possibly older objects that attention is being turned.

There has always been in India a great deal of literary antiquarianism. A discovery to provoke interest must be capable of being traced to a reference in the Puranas, the Mahabarata, or the Jatakas, or failing that to some recognizable element in Hindu, Buddhist or Jain iconography. Where such a link is missing it is either created with a naive disregard for scientific method, or else the objects found are passed

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\* He published *L'Art gréco-bouddhique du Gandhâra*, 2 v: 1905-8.

## THE MOTHER-GODDESS OF GANDHARA

over as being unworthy of attention. The point now arises that there are objects present in ancient sites in Gandhara which do not readily fall into any recognized category, and it is of the greatest importance that it should be determined whether these objects are datable to a period previous to the invasion of Alexander, and if they are, do they date back beyond a period showing verifiable contacts between India and the West, say the time of Cyrus ?

The crux of the problem would appear to be the identity of the local Mother-Goddess and the earliest date of her importation into Gandhara. At first sight this would seem to be an almost insoluble problem. On the west, beyond the mountains of Afghanistan, there lies a region where the worship of the Mother-Goddess may well have an unbroken continuity dating back to palaeolithic times. On the south there is the Indus Valley, where this worship may be considered as being established for at least a thousand years before the time of Alexander.

The data concerning the Mother-Goddess as worshipped in Gandhara is of a very curious character. At one and the same time there are being observed the rites of the Buddhist creed, and the worship of a mother-goddess and her consort. Furthermore these are not kept separate as one might suppose, but are actually present together at the same place of worship. To show that this was the case one must link the mother-goddess in terra-cotta with the figures of the so-called Hariti, and this can, I feel, be done without in any way straining the evidence.

I have previously called attention<sup>1</sup> to the extremely interesting types of terra-cotta figures which can be found all over the North-West Frontier. Such figures were found in the Charsadda excavations of 1903, and also at Shah-ji-ki-Dheri, but they did not rouse great interest at the time, being generally regarded as toys, for in any case there were not present at that time other factors now in existence to stimulate an interest in such objects. I have particularly concentrated on an archaic type of mother-goddess figure, characterized by being peg-shaped, with pinched-out nose and applied incised eyes, naked but for ornaments, a girdle, necklace, bracelets, anklets and the channavira.<sup>2</sup> Such figures

<sup>1</sup> 'Some Terra-cottas from Sari Dheri, North-West Frontier Province'. *J.R.A.I.*, LXII, 1932. 'Notes on Early Frontier Terra-cottas'. *Man*, 1934, no. 70. 'The problem of Early Indian Terra-cottas'. *Man*, 1935, no. 129.

<sup>2</sup> A jewelled chain crossed diagonally across the front of the body from shoulder to opposite hip.

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are present in relatively large quantities at the site of Sari Dheri near Charsadda, a few of identical and of similar style have been found at Taxila, and there are indications to show that investigation would produce them from a number of other sites<sup>3</sup> (PLATE II).

The site of Sari Dheri would appear to be a shrine. Terra-cotta objects in great variety are found there, but mother-goddess figures and those of animals, particularly oxen and horses, are also there in large numbers. Some of the animal figures have the appearance of being toys, but it is probable that all are of a votive character. One thing, however, seems clearly indicated, this was the shrine of a mother-goddess with an attendant god, the former receiving the lion's share of the worship and the 'ex votos'. The shrine had grouped round it, judging by the pottery and the clay and stone weights found in the vicinity, the homes of the priests, or possible priestesses, and the temple servants.

Who were this mother-goddess and attendant god? It seems to admit of small doubt that they were Hariti and Kuvera, whatever that may mean, and that is very little, except that they were the prime deities of the then most progressive part of India for close on five hundred years. Information on the subject of these deities is very scanty, but Buddhist Gandhara is full of their representations. Hariti, the true Hariti, mother of demons, wife of Prajnaka, converted by the Buddha, is shown with her children grouped round her, but who is the so-called 'Hariti' shown with a cornucopia and mural crown? This is a much more important personage, one with whom it will be shown the philosophy of Buddhism had to share its sanctuaries and its worship, no lesser a one than the great Mother-goddess herself, patron goddess of Pushkalavati as Athene was of Athens. The shadowy Kuvera,<sup>4</sup> giver of wealth, lord of Yakshas, is the true lineal descendant of all those chthonic gods of wealth and of the underworld, who are to be associated with fertility cornucopia goddesses. As is so often the case in Hellenistic times, the attributes of many fertility cults are mingled, and there are traces of the iconography of Ceres, Cybele, and Astarte, also Pluto, Dionysos, and Attis. Though it is possible to challenge this conclusion, I suggest that the real deities immediately behind the inadequate

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<sup>3</sup> I have specimens from various sites in the Charsadda and Mardan sub-divisions, and also one reported to come from a mound about a mile from the Buddhist site at Hadda, Afghanistan.

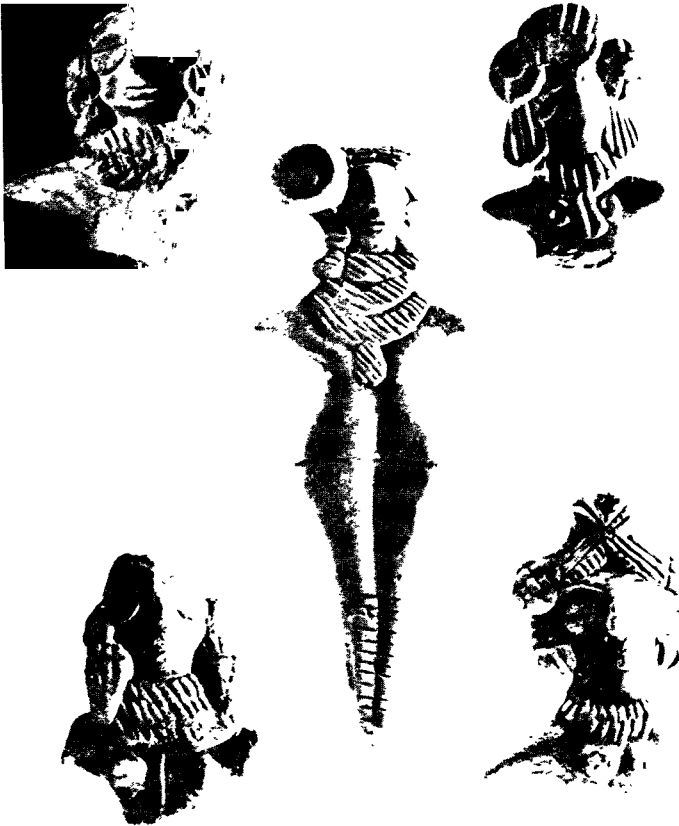
<sup>4</sup> The words Cabiri, Kabeiros, Kubera indicate most probably the origin of this god, and his link with the fertility mystery.

PLATE I



HARITI AND KUVERA. STU'PA-PLINTH, TAKHT-I-BHAI. (See pp. 72 and 76)

PLATE II



ARCHAIC FIGURINES. (See p. 71 ff)

From Sari Dheri (top, L and R) ; from Sheikh Yusuf (centre) ; from Hadda, Afghanistan (bottom, R) ,  
from vicinity of Taxila (L)

## THE MOTHER-GODDESS OF GANDHARA

Hariti and Kuvera are Anaitis and Mithra and that they alone can fulfil the conditions of style and period.

There is, however, a school of thought that would assign a great local antiquity to the worship of this Mother-Goddess. Until Coomaraswami<sup>5</sup> brought to notice an archaic type of female figurine which had come into his hands, such a style of figure, though previously unearthed at Charsadda and Taxila, had received no attention. Coomaraswami has proposed a second millennium dating for them, and as they have an archaic appearance similar in character to that of very early dated figurines from the Near and Middle East, it is likely that this pushing back of dates, which is always so attractive, will receive a number of supporters.

A point may here be emphasized. The figures of the Mother-Goddess, apart from the stone and stucco figures of datable Buddhist provenance, are of many kinds, the three most numerous being, as I now choose to term them, the Archaic style, the Hellenistic, and the Indian style. The Hellenistic and the Indian are datable and cover a period roughly from 180 B.C. to A.D. 300, but what of the Archaic style? Is it roughly contemporary with the Hellenistic, or are we to suppose that this style existed from, let us say, 1500 B.C. to A.D. 300, and that the archaic eye-forms<sup>6</sup> were carried on over such a period to appear in crude copies of the Hellenistic style, and in moulded Indian types of the 2nd or 3rd century A.D. as they do? The coins also of Sari Dheri west mound, the prime source of archaic figurines, do not indicate a high dating; Kushan coins appear from the centre of the section and those of Azes from quite low down. The total absence of Indo-Greek coins of the rulers of Pushkalavati may call for a lowering of the dating of the Hellenistic heads, but there is nothing corroborative of high antiquity.<sup>7</sup>

In order to establish a second millennium dating for any of the material it will be necessary to prove something more than the priority of the archaic figures. An horizon lower by eight or ten feet, at the rate, unknown, of deposit of consecutive mud-wall reconstruction, may not indicate even a hundred years, and it will take more confirmatory evidence than mere priority to show that Sari Dheri was a shrine of the

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<sup>5</sup> 'Archaic Indian Terra-cottas'. *IPEK*, 1928.

<sup>6</sup> A male head with a large moustache of a very Scythian or Parthian style has been found, having also the characteristic applied incised eyes. It is a grotesque applied to the neck of a terra-cotta flask, and its dating, late 1st century B.C.

<sup>7</sup> A coin of Archebios of Drangiana has recently been found.

## ANTIQUITY

Mother-goddess for close on two thousand years. If by any chance this proves to be the case, the cultural sequence that emerges should be truly astounding, as there are in the mounds quite a number of blue schist Gandharan carvings of the 2nd century A.D.

The evidence, however, to be obtained from Taxila is, I feel, quite convincing and conclusive. Mother-goddess figures in terra-cotta of archaic type have been found at Bhir Mound, Sirkap, and Dharmrajika Stupa. One from each is of true Sari Dheri type, the others are sufficiently similar to be classed as very closely associated variants. Terra-cotta seated figures of 'Kuvera' are present from both Sirkap and the Bhir Mound, and a male and female pair from a mould found in large quantities in the Bhir Mound are undoubtedly votives to the Mother-Goddess and her consort.

FIGURE 1 shows a most interesting and important statuette from Sirkap. It lay at 8 ft. 10 ins. below surface, that is to say in the margin between the 3rd and 4th strata. It is, therefore, unless it is misplaced by preservation as an object of antiquity or any other reason, datable to the Scytho-Parthian period. The important features are that it is naked but for the usual ornaments and the channavira, and has two long plaits down the back, and that the attitude is stiff, frontal, and archaic and closely conforms in ideology and iconography to the archaic terra-cottas.<sup>8</sup>

Sirkap, like Sari Dheri, can show all three mother-goddess types—the archaic, Hellenistic and Indian. The first have a very Syro-Palestinian appearance and show that characteristic stressing of the pudenda which occurs in so many votive figurines. The second are of that Greek type found at Akra and Sari Dheri, some with wreaths, some with pigtails, some with a rosetted head-dress which is probably the same as that shown in the archaic figures, modified to harmonize with the western art-form. The last, the Indian, are oval flat-backed moulded figures of the Akra type, and moulded figures of that rather ornate and jaunty style that one associates with the tradition of Mathura.

The most interesting items, however, are the model shrines found at Sirkap. From the accompanying illustration (FIG. 2) it will be seen that the shrine consists of a walled enclosure with lamps at the four corners, and birds on three walls and the shrine itself in the centre of the fourth; steps lead up to the shrine outside which stands a figure

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<sup>8</sup> Plate XIX, fig. 2, A.S.I.R., 1928–29, shows a figure from the same site and of the same dating with similar archaic features in only a slightly less degree.

## THE MOTHER-GODDESS OF GANDHARA

of the Mother-Goddess. In the enclosure are small pillar-like objects, and a fragment of a similar enclosure shows two snakes and a pillar. I have not the least hesitation in saying that the birds are doves, and that

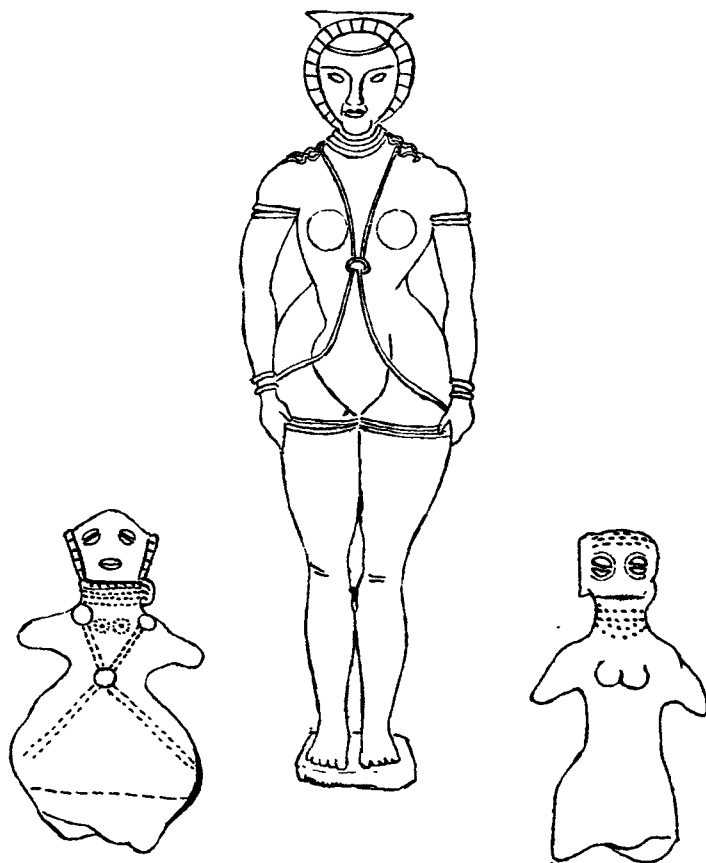


FIG. 1

Left: TERRA-COTTA ARCHAIC FIGURE, SIRKAP

Centre: BLUE SCHIST FIGURE, SIRKAP

Right: TERRA-COTTA ARCHAIC FIGURE, BHIR MOUND

*from originals in the Taxila Museum*

they, together with snakes, pillars, and lamps, constitute the whole of the adjuncts of the worship of the Great Mother-Goddess.

Moreover these shrines, called there offering-tanks, are shown in plate XIII, A.S.I. annual report 1924-5, in situ beside a Buddhist or Jain



## ANTIQUITY

stupa at Sirkap where they had been dedicated. Why do figures of the Cornucopia goddess and her consort occupy the central place on the plinth of Buddhist stupas as they do, a most notable case being at Takht-i-Bhai? (PLATE I).<sup>9</sup> Why should Buddhist shrines have votive figures of the mother-goddess and her consort, of bulls, of model cornucopia, of mother-goddess shrines complete with doves, lamps and pillars? It is I feel certain because the worship of the Great Mother brought by Hellenized Parthians became the true religion of Gandhara as opposed to the Buddhist philosophy, which could have had but small attraction for the uneducated, and possibly less for the Parthian invaders.

It cannot be denied that there is a case for the presence of the worship of the Mother-Goddess in these regions before the Parthian supremacy. This worship, however, comes from the Near and Middle East and so does the practice of depositing vast numbers of figurines at shrines. I have turned to Van Buren's 'Clay figurines of Babylonia and Assyria' as a compendium of knowledge on the subject. Searching this book, I was struck by the way that objects of no known provenance, and few if any parallels, are dated almost uniformly to B.C. 2000. I feel that but for its Aramaic inscription, fig. 199, showing a man struggling with a lion, would have been dated much earlier.

The relevant figures are:— Fig. 49, showing a nude woman with breasts cupped in her hands (300 B.C.). Taxila Museum can show an almost identical figure except that one arm is across the waist and the other hanging down; figs. 145–7, reclining figures wearing a Scythian cap identical with those worn by the 'Kuvera' figures; fig. 299, a shrine with steps and serpents, in which the latter are very similar in style to those in the shrine from Sirkap. The provenance of this shrine is unknown, and though it has no parallels it is dated to 2000 B.C.

There are therefore no parallels to be found there of proven antiquity, and but for the fact that figures have been found at Khafaje with applied incised eyes, which so far had seemed to be unique in northwest India, one could say that nothing from the Middle East could be used to support an early dating for the Indian terra-cottas. The sites themselves, as may be seen from the appended table, show a

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<sup>9</sup> These are almost certainly the same figures as are present in the coins of Azes and classed as 'enthroned Demeter and Hermes'. The coins also of Philoxenos showing Demeter and a bull, and a city goddess (Cybele-Hariti) and a bull may be instanced as showing a connexion with the bull cult.

## THE MOTHER-GODDESS OF GANDHARA

striking uniformity in terra-cotta objects found, this being borne out by their style as well as their subject.

One of the points of great importance relative to this inquiry is the dating of the Bhir Mound. The upper levels cannot well date later than 150 B.C., but there is little or no evidence to show that they do not date from the first half of the 2nd century B.C., as I believe they do. The archaic figure with applied incised eyes found at the Bhir Mound was 4 ft. 6 ins. below surface. There is a similar figure from Sirkap, and these mother-goddess figures of crude style are found in the model

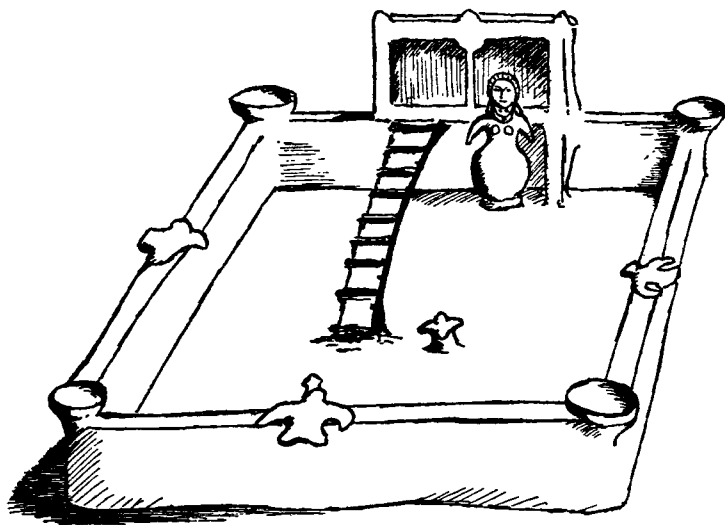


FIG. 2. MODEL SHRINE, SIRKAP  
*from the original in the Taxila Museum*

shrines at 4 ft. 7 ins. and 6 ft. 7 ins. below surface at that site, indicating a dating for these figures starting from *c.* 200 B.C. as an extreme upper limit and continuing to the 1st century A.D. or possibly later. This well agrees with the dating of the archaic figures of the Charsadda sites.

I suggest that this particular cult of the Mother-Goddess came into northwest India at the time of Antiochos the Great of Syria about 210–200 B.C. It is unlikely that the cult was entirely foreign to the inhabitants, but it took on at that time a Syro-Persian complexion, which is observable in the votive terra-cottas and subsequently in the Hellenized mother-goddess with her cornucopia and mural crown. This

## ANTIQUITY

form of worship was the dominant cult supported by all except the few who had the inclination to subscribe to the pure Buddhist tenets, and it is obvious from the position of the votive shrines and the importance of 'Hariti' that the Buddhist priesthood was wise enough to pander to the popular taste.

The one thing now lacking is excavation in Charsadda conducted in the light of modern knowledge. It is, however, possible that such research may be undertaken in the cold weather of 1936-7 by Mdlle Corbiau of Brussels, who has, despite great difficulties, visited Sari Dheri and carried out trial investigations. She has come to the task determined to prove that the archaic figures are of great antiquity, and I am afraid that the same capacity for determination which ensured her reaching Sari Dheri will produce willy-nilly such proof. While one may regret this, it is to be hoped that her colleagues in Belgium will be sufficiently impressed by her report to undertake systematic excavation. Even if, by any chance, references to the Sumerian, the Cycladic, and the Ukrainian cultures do emerge, these will not, I am convinced, affect an accurate stratigraphical presentation, which will be invaluable.

I feel, however, that I have made a *prima facie* case for the Great Mother-Goddess in her manifestation as the Persian Anaitis, as the principal deity of Gandhara, and a late 3rd-century B.C. to a late 3rd-century A.D.-dating to cover the whole of the terra-cotta objects now emerging from the ancient sites of that province.

COMPARATIVE TABLE OF SITES

Site	Human figures	Animal figures in order of quantity	Black lined pottery	Gandharan stone or stucco work	Model cornucopia
TAXILA :— Bhir Mound  Dharamrajika Stupa  Sirkap	Archaic ; seated Kuvera ; male and female pair	Elephants, horses, oxen	Yes		
	Archaic	Oxen, elephants	Yes	Yes	
	Archaic, Hellenistic and Indian Seated Kuvera	Horses, oxen, elephants and birds		Yes	Yes
PESHAWAR DISTRICT :— Sari Dheri  Kula Dheri  Sahri Bahlol	Archaic, Hellenistic and Indian Seated Kuvera	Oxen, horses, birds, elephants, rams, camel, and buck	Yes	Yes	
	Archaic and Indian Seated Kuvera	Oxen, a lion		Yes	Yes
	Archaic and Indian Seated Kuvera	Rams, elephants and oxen	Yes	Yes	

# The Lighter Side of Archaeology

By E. CECIL CURWEN

ARCHAEOLOGY emphatically has its lighter side, though this is not always recognized by the lay public. The antiquary of the past was looked upon as a musty old bore—the reverse of entertaining company, while the modern archaeologist is apt to be depicted in the humorous press as an immature individual of either sex, dull, myopic and dowdy.

There is, however, quite a lot of humour in archaeology, both ancient and modern. Intentional humour is rare in ancient times, at least so far as evidence of it has survived. But what can one make, for instance, of the table of measures of capacity given in the ancient Irish laws? After detailing these measures, and working up from the shell of a hen's egg as the smallest to the 'olpatraic' as the largest, the passage continues:

'Four and twenty clerics sit down about it, and twelve laymen.

They get an equal quantity of food, and double ale is allowed to the laymen, in order that the clerics may not be drunk, and that their canonical hours may not be set astray on them'.<sup>1</sup>

It almost looks as if the largest Irish measure of capacity was not the 'olpatraic which contains two olfeine', but the layman who is equal to two clerics!

But if intentional humour is rare, a quality of naïvety, often amounting to humour of an unintentional kind, is frequently found, especially in the old Welsh laws. Dealing, for instance, with fines to be inflicted for certain offences, we read:

'Sixscore pence is due to the lord for ploughing up a road, but nothing is due for sowing it nor for harrowing it, since there is no penalty for improving it'.<sup>2</sup>

Times have changed, and improvements of this kind are no longer welcomed by the Minister of Transport. Or look at this delightful passage, apropos of the rights of property and the sharing of domestic furniture between husband and wife:

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<sup>1</sup> *Ancient Laws of Ireland*, III, 335-7.

<sup>2</sup> *Ancient Laws of Wales*, II, xvii, 9 (Dimetian Code).

## THE LIGHTER SIDE OF ARCHAEOLOGY

‘The wife of a *taeog* can give away nothing but her head-gear ; and lend only her sieve, and that as far as her voice can be heard from the dung-hill requesting its return ’.<sup>3</sup>

Oh ! for a breath of this fresh air in Westminster ! An official test of the legality of such a loan would be worth seeing—and hearing. Somehow one connects with it the following :

‘Whoever shall sell a cat is to answer for her not going a caterwauling every moon ’.<sup>4</sup>

There is another class of enactment which is not in any sense unconscious humour, and yet its very quaintness is refreshing. This is concerned with rough and ready methods of estimating quantities and defining qualities, generally in connexion with fines or compensations due for damage. Among these we have the following :

‘The worth of a cat, that is killed or stolen ; its head is to be put downwards on a clean, even floor, with its tail lifted upwards, and thus suspended, whilst wheat is poured about it, until the tip of its tail be covered ; and that is to be its worth . . . ’.<sup>5</sup>

The compensation due to another class of plaintiff is a gold cup,

‘ . . . with a gold cover to it as broad as his face, and as thick as the nail of a ploughman who has been a ploughman for nine years ’.<sup>6</sup>

For personal injury we have such compensations as the following :

‘Of the worth of hair pluckt from the roots . . . a penny for every finger used in plucking it out, and twopence for the thumb, and twopence for the hair ’.<sup>7</sup>

When, however, it was a case of a broken head it was a more serious affair with higher damages :

‘The cranium, fourpence ; for every broken bone, twenty pence, unless there be a dispute as to its diminutiveness ; and if there be a dispute as to its size let the mediciner take a brass basin, and let him place his elbow upon the ground, and his hand over the basin, and if its sound be heard, let four legal pence be paid, and if it be not heard, nothing is due ’.<sup>8</sup>

The significance of this last is explained by another passage which says :

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<sup>3</sup> *Ancient Laws of Wales*, I, 95 (Venedotian Code, II, I, 39).

<sup>4</sup> *Ibid.* I, 577 (Dimetian Code, II, XXXII, 4).

<sup>5</sup> *Ibid.* I, 577 (Dimetian Code, II, XXXII, 1).

<sup>6</sup> *Ibid.* I, 235.

<sup>7</sup> *Ibid.* I, 315 (Dimetian Code, I, XVII, 8).

<sup>8</sup> *Ibid.*

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‘ Fourpence is to be paid to a person for every bone, taken from the upper part of the cranium, which shall sound on falling into a copper basin ’.<sup>9</sup>

The responsibilities of the surgeon were clearly heavy, and out of all proportion to his fee, for

‘ The following is to be paid to a wounded person for whom it is necessary to have medical aid . . . : fourpence for a pan to prepare medicaments for him ; fourpence for the tallow ; one penny for his light nightly ; *one penny for the food of the mediciner daily* ; and one penny for the food of the wounded daily ’.<sup>10</sup> (Italics mine !)

But if any reader is tempted to think that all damages were assessed on such simple and homely principles, let him try to work out the following :

‘ The worth of a man’s fore-tooth is twenty-four pence, with three augmentations ; and it is thus augmented : the first augmentation is eight pence ; the second augmentation is tenpence halfpenny and the third of a penny ; the third is fourteenpence halfpenny and the third of a halfpenny and the ninth part of a halfpenny ; which when all reckoned together is fifty-six pence and a halfpenny and two parts of a halfpenny and the ninth part of a halfpenny ; and whosoever willet to know the augmentation on the silver, it is necessary for him to augment in the first augmentation as much as the third of the sum upon which the augmentations occur, and place that in one sum ; and the second augmentation is, taking the third of that sum and adding it to the whole sum ; and the third in like manner, taking as much as the third, as the previous reckoning on the worth of a person’s fore-tooth . . . ’.<sup>11</sup>

We must confess to having forgotten about the tooth.

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Every archaeologist receives letters from people announcing some discovery they have made, or seeking an opinion on some finds. Generally these communications are sane and helpful ; occasionally they are neither. Here are some extracts from a letter received several years ago from an intelligent and well-educated man (now deceased), retired and living in the country. After submitting the inevitable

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<sup>9</sup> *Ancient Laws of Wales*, I, 507 (Dimetian Code, II, XVII, 16).

<sup>10</sup> *Ibid.* I, 507 (Dimetian Code, II, XVII, 15).

<sup>11</sup> *Ibid.* I, 505 (Venedotian Code, III, XXIII, 25).

## THE LIGHTER SIDE OF ARCHAEOLOGY

natural flint nodules bearing purely fortuitous resemblance to animal-bones, etc., he says :

‘ I take great interest in my surroundings . . .

‘ The Poor Law Institution has a very French appearance. From gossip, books, and deduction I am rather inclined to think that the Institute was built by French prisoners taken by the British at the Battle of Agincourt, and when stationed at G . . . In support of this there is in front of the building a Monkey Tree. It takes, I am told, 25 years between each set of branches. There are in this particular tree 19 such spaces.

‘ What makes the neighbourhood more interesting is the number of sandhills. A relic of the days of the Flood, when the comet hit the earth leaving a trail of volcanic sand in its wake, and drying up all the water, causing the people of the earth to live in darkness for a long period from perpetual fog. When the mist settled down the fog obscuring the heat of the sun caused the ice age.

‘ I dug up some time ago a large piece of iron stone, round and about the size and shape of a small football. I broke it open and found imbedded in it the lower jaw probably of a fox. I sent it to the British Museum and they said it was probably caused by huge pressure from the earth at a far distant date, and that this district was undermined by a large area of sheeted ironstone. I think this must be right as I can find water everywhere around me on digging about two feet.

‘ I hope I have not wearied you ’.

My reply might have been : ‘ No, Sir, you have not wearied me ; you have cheered me along the dull and dusty path of serious archaeology ’.

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Here is the latest pastime for archaeologists. You get the six-inch Ordnance sheets covering a limited area, and you proceed to cut with sharp scissors along certain boundaries. Each cutting drops out in one piece, and, of course, presents a definite shape. If you get a sufficient number of them to resemble the twelve signs of the Zodiac you deduce the former existence of some kind of Temple of the Stars in the centre of the district concerned. Something of this sort has recently been done with great success in the Glastonbury area,<sup>12</sup> and the method has the obvious advantage that the conclusions attained are difficult to disprove. The writer is thinking of adopting a similar line of approach in solving various archaeological problems, such as the location of the Golden Calf.

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The following anecdotes are true, and are not in any way embellished or exaggerated :

A large car, complete with chauffeur, discharged two ladies at the foot of the hill on which Maiden Castle stands. They had come to

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<sup>12</sup> *A Guide to Glastonbury's Temple of the Stars*, John M. Watkins, 1935.



## ANTIQUITY

view the recent excavations. Reading the notice about the Ancient Monuments Act and the guardianship of the earthwork, one of the ladies was heard to exclaim: 'Ancient Monuments Commission! Oh! I belong to that! What a pity I didn't bring my ticket! . . . Oh, no! it's not that; it's the National Art Collections Fund that I belong to!'

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A little girl of three was looking over her father's shoulder as he was perusing Fox's *Archaeology of the Cambridge Region*. Seeing a photograph of a complex array of iron objects dating from the Iron Age she exclaimed—'What's that, daddy? Is that an accident?'

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Many years ago we had just dug a small trial-trench across an old trackway, and when it was filled in and turfed over it bore a considerable resemblance to a grave. Someone thought it appropriate to chalk an epitaph on an old piece of iron, and on discussing what to put, the chauffeur said—'Why not put what we saw written on the back of that car this morning, sir: *Excuse my dust*'. Subsequently a little girl from a neighbouring cottage reported to her mother that someone had killed and buried himself there!

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Some young military officers were being shown round excavations in a small Iron Age hill-fort, and it was explained to them that the fort had been a place of refuge into which the neighbouring villagers could betake themselves and their cattle in times of danger.

'Well, that seems a silly thing to do!' exclaimed a budding strategist, 'Why did they bring all their cattle up on to the hill-tops in full view of the enemy?'

'Well, as they had no guns in the Iron Age, that wouldn't matter very much, would it?'

'Oh-h-h!?!' (The Dawn of a New Idea).<sup>13</sup>

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While digging at Hembury Miss Liddell was visited one day by a voluble old lady and her icily superior daughter. The old lady was very excited, for had she not that very morning been to see the excavations at Shaftesbury Abbey, where, she announced, they were digging up Saints, and (turning to her daughter) were not these excavations exactly

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<sup>13</sup> Contributed by Mrs A. C. Roper.

## THE LIGHTER SIDE OF ARCHAEOLOGY

the same ? ' Not at all ', said her daughter, with that condescension that comes from superior intellect, as she eyed the Neolithic hut, ' those were Roman Catholic ; this is Anglo-Saxon '.<sup>14</sup>

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Miss Liddell's foreman, Young, was working at the bottom of one of the huge post-holes at Hembury, when he was hailed to the surface by a bearded enthusiast, very ripe in years, who was anxious to be assured that ' this was really Roman '. Young painstakingly explained that it was not, but that the four post-sockets exposed were in fact part of a still earlier gateway, whereon the old man called to his wife who, heavily plumed and beaded, was plodding up the hill : ' Come and look at this, Maria ! They *say* they found a four-post bed in this hole ! ' <sup>15</sup>

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A very stout party attacked Hembury Fort from a singularly uncompromising angle at the south, and having scaled all the ditches and ramparts at their worst, and clambered over one transverse ditch and bank to achieve in triumph the summit of the central mound, exclaimed : ' Now where is the fort ? ' <sup>16</sup>

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A char-a-banc load of sight-seers surged into Stonehenge, headed by an old dame who, obviously impressed, stood by with hands folded on ample black bombazine and sighed : ' My ! isn't that a novelty ! ' <sup>17</sup>

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The writer was making a plan of the neolithic ditches at the Trundle, sounding the ground with a rammer to ascertain their limits, and marking their outlines with pegs.<sup>18</sup> Several visitors to the famous beauty-spot watched the proceedings, obviously puzzled, till at last one well-dressed elderly gentleman ventured a polite enquiry, to which I replied :

' I am making a plan of the prehistoric entrenchment on this hill '.

' Of course ! Of course ! ' (*Exit in haste, with his eye on the towers of Graylingwell Asylum on the plain below*).

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<sup>14</sup> Contributed by Mr Stuart Piggott, with Miss Liddell's approval.

<sup>15</sup> Contributed by Miss D. Liddell, F.S.A.

<sup>16</sup> Contributed by Miss D. Liddell, F.S.A.

<sup>17</sup> Contributed by Miss D. Liddell, F.S.A.

<sup>18</sup> See *ANTIQUITY* (1930), IV, 30-1.

## ANTIQUITY

During the restoration of Stonehenge in 1920, Mr R. S. Newall was standing on one of the lintel stones that had just been replaced in its proper position, when an old lady asked him in all seriousness—‘ Young man, are you puttin’ this up again ’avin’ ’ad it ’idden for the hair-raids ? ’—‘ Yes, Madam ’ was the inevitable reply.<sup>19</sup>

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A reputed Roman road at Henley in West Sussex has recently been proved by excavation to be medieval. A lady living in the locality had occasion to inform her maid of this fact, only to hear—‘ Well, miss, it has been a Roman road as long as ever I’ve known it ! ’

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Lt.-Col. Hawley was digging a section of the ditch at Stonehenge, and the finds, layer by layer, had gone into three trays labelled 1, 2 and 3. As he bent down he felt a poke from behind. This he ignored, until another and more vigorous poke made him turn round to find an old lady prodding him with her umbrella. With a beam of satisfaction—‘ I think I’ll ’ave one of the tuppenny ones, please Sir ’, she said.<sup>20</sup>

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*An Allegory concerning the Development of Iron Age Pottery in Southern Britain.*—The handsome foreigner, Mr Hallstatt, came to Britain in his old age and married Mrs Deverel-Rimbury, who was coarse, fat and ugly. Shortly before the death of Mr Hallstatt Mrs Deverel-Rimbury gave birth to a son, Mr A1, who was a boorish youth, possessing traces of his father’s handsome features, but much of his mother’s clumsiness. In later life he grew more sober, discarded his mother’s cheap ornaments, grew rather more polished, and changed his name to Mr A2. Finally he married a pretty and artistic French girl, Mlle B, who had recently settled in the southwest ; by her he had a son, Mr AB, who had much of his mother’s good looks but not much originality. Mr AB married a Belgian girl, Mlle C, who presented him with a son, Mr ABC, who resembled both his father and his mother. Finally Mr Roman came along, strangled Mr ABC, and set up a chain-store where he sold mass-produced wares.

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<sup>19</sup> Contributed by Mr R. S. Newall, F.S.A.

<sup>20</sup> Contributed by Mr Stuart Piggott and Mr R. S. Newall, F.S.A.

# The Use of Wood in Megalithic Structures

by A. VAYSON DE PRADENNE

LONG ago one of our oldest French prehistorians, Gustave Chauvet, called attention to the probable existence of a wooden framework over the structures beneath tumuli. At a Congress of the A.F.A.S. held at Nantes in 1875 he described the digging of seven tumuli at La Boixe (Charente) containing burials of the polished Stone Age. Two of them covered true dolmens ; others simple rectangular or circular *cellae* enclosed within small dry-stone walls.

Returning to the subject in *Matériaux . . .* (1882-3, 539), he published under the title '*Deux dolmens en bois à Fouqueure*' the results of the careful excavation of two similar tumuli in the same region of Boixe. He concluded that inside those tumuli there had been burial-chambers covered with wooden roofs and flat stones. His deductions were made from (1) the external form of undisturbed tumuli with a depression in the middle ; (2) the presence of side-passages which would have served no purpose if the burials had not been placed in a chamber of some height ; (3) traces of dents visible on the broken bones, indicating a sudden collapse ; (4) the appearance of the broken pottery : (5) the angle of inclination towards the centre of the closing-stones, showing that they had leant towards the interior when the chamber had not yet fallen in.

The monuments in question, though not strictly megalithic structures, were associated with true dolmens, and in a general manner the cists belong to the final phase of the civilization which created megaliths, and they are derived from those structures.

The observations of Chauvet did not make much of a stir, and others which have been made in the nordic regions of the dolmen-zone do not seem to have been properly appreciated. But one should observe the importance that wood must have had in the structures of all historic and proto-historic periods in the great forest regions of Europe. Whilst in the Middle Ages in Italy and in Provence *castellieri*, *castelas* or *castelleras* of stone were built, in the flatter parts of France, richer in fine oaks, corresponding wooden towers were made on mottes or donjons. The walls of Celtic oppida in Burgundy, for example, were of stone intercalated with wooden beams. From remote

## ANTIQUITY

times down even to the present day Scandinavia has produced wooden structures resting on lower courses of stone, sometimes reduced to a few big blocks forming pillars. When, further, one notes that all the normal Neolithic and Bronze Age houses of northwest Europe were of wood, one is forced to take account of the probable presence of wood in certain instances associated with stone structures of more importance, contemporary with those houses.

Let us examine, for instance, one of the most famous and imposing megalithic structures, that of Stonehenge, in Wiltshire. Admired, described and studied for centuries, it consists primarily of a great outer circle of dressed stones or pillars, their tops united by horizontal stones like lintels; it is, in short, a colonnade surmounted by an architrave. The interior is set with another circle of stones of different provenance and of lesser height, whose tops are not united or worked. Then comes a group of tall stones analogous to those of the outer circle, also joined at the top by lintels and arranged in horse-shoe plan. The two uprights at the head of this horse-shoe are higher than the others, which themselves surpass in height those of the outer circle. Inside the horse-shoe is a flat stone lying on the surface of the ground.

Note the main frame-work of Stonehenge—outer circle and horse-shoe, both composed of uprights and lintels. A type of structure employed until quite recently by the North American Indians provides a remarkable analogy. There has been described<sup>1</sup> under the name of earth-lodge a large wooden building covered with branches and plastered together with earth. The whole affair consists of an outer circle of wooden posts joined together at the top by transverse beams, and of a central polygon composed of four to eight taller posts similarly united. The roof is a framework of big beams with the bark stripped off resting on this double support. It is conical in shape, or rather that of a truncated cone, for at the top is an opening to let the smoke escape and let the light in. The hearth is placed in the centre and the beds are round the edge between the posts. A kind of porch constructed like the main building and enclosed with leather hangings forms the entrance.

The similarity between the frame-work of Stonehenge, which can be reconstructed with certainty, and the design of an Omaha earth-lodge, is shown at once by PLATE I. But, further, even the relative proportions are retained. The authors tell us that the Omaha house has a diameter of between 20 and 60 feet;

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<sup>1</sup> A. C. Fletcher and Francis La Flesche, 'The Omaha tribe': 27th Annual Report of the Bureau of American Ethnology, 1911, pp. 97-8, and pls. 22-23.

PLATE I



FIRST STAGE OF THE CONSTRUCTION OF AN EARTH-LODGE, OMAHA, NEBRASKA  
*after A. C. Fletcher and F. La Flesche*

PLATE II



EARTH-LODGE, OMAHA, COMPLETED EXCEPT THE TURF-COVERING.  
*after* A. C. Fletcher and F. La Flesche

PLATE III



OMAHA VILLAGE, NEBRASKA, c. 1860, WITH OLD EARTH-LODGE  
*after A. C. Fletcher and F. La Flèche*



PLATE IV



THE 'MEDRACEN', PROVINCE OF CONSTANTINE, ALGERIA  
presumed to be a royal burial-monument before the Roman Conquest of Numidia. Diam. 59 metres  
*ph. l'Oulac-Alger*

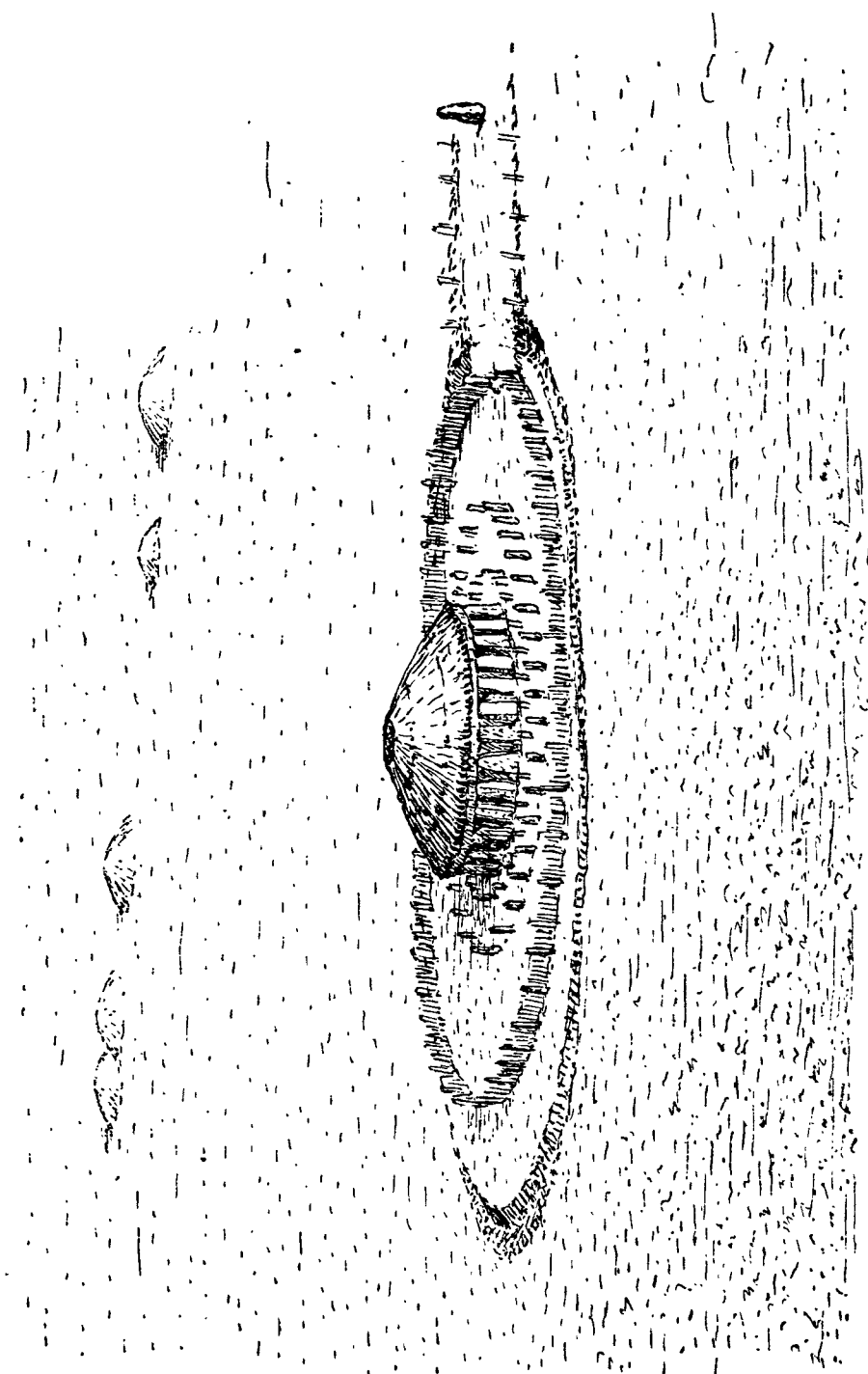


FIG. 1. SUGGESTED RECONSTRUCTION OF STONEHENGE  
seen as in the oblique air-photograph reproduced by GRAHAM CLARK in 'The Timber Monument at Armaghall' . . . . Barrow group visible in the background  
(*Proc. of the Preh. Soc.* 1936, pl. XIII)

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that of the central part is about half as much ; the outer uprights are 8 feet high, the inner ones 10 feet.

The great circle of Stonehenge has a diameter of about 30 metres and the inner horse-shoe is about half as much ; the outer uprights are 4 metres high, and the inner ones 5 metres, except the two big ones which are 6 metres. Thus, allowing one metre as approximately 3 feet, the dimensions of Stonehenge are on the whole equivalent to those of a big Omaha house multiplied by  $\frac{3}{2}$ .

Is this merely a curious coincidence ? Note first of all that the North American environment where these structures are found has, or had until quite recently, close cultural analogies with the European environment at the end of the neolithic and beginning of the metal age—in the big leaf-shaped knives, the arrowheads, mallets and grooved axes, the appearance of the pottery, the bottle-shaped underground storage-pits near settlements—all closely parallel in both regions. There are therefore no *a priori* reasons against such a comparison.

But is such a comparison reasonable ? The nature and purpose of Stonehenge has been the subject of prolonged controversy, but no certain conclusions have been reached. Nevertheless it seems proved that, in spite of its orientation towards the point of sunrise at the summer solstice, it is not, as has often been claimed, an astronomical monument permitting of solar observations at certain periods of the year, for there is nothing exact and geometrically precise in its dimensions. There remains the very general hypothesis of a sacred monument, tomb or temple, or chamber of a palace. If it was a sacred monument it may have been open or covered in. Evans and Schuchhardt have made a comparison with the circle of shaft-graves at Mycenae.<sup>2</sup> But this was enclosed with simple raised slabs, as a kind of agora or public place in the midst of habitations, and does not resemble the complex and isolated structure which is Stonehenge.

More recently Newall, in a scholarly and well documented article,<sup>3</sup> has put forward the suggestion that Stonehenge was a place of multiple burials, for its plan approaches that of certain tumular burial-chambers. And in reply to the objection that there is too great a difference in the respective dimensions Newall adds :<sup>4</sup> ' Intermediate forms [between chambered cairns and Stonehenge] may possibly be provided by wooden structures, the archaeology of which is as yet only in its infancy. A

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<sup>2</sup> See ANTIQUITY, 1936, x, 411.

<sup>3</sup> ANTIQUITY, 1929, III, 75-88.

<sup>4</sup> loc. cit., pp. 87-8.

## THE USE OF WOOD IN MEGALITHIC STRUCTURES

wooden structure has been found in a long barrow in Wor Barrow, and Bleasdale seems to be a wooden circle (*Trans. Lancs. and Cheshire Antiq. Soc.*, XVIII). Woodhenge . . . is undoubtedly similar to Stonehenge and may have had eight *trizulons*, if such a word can be allowed'. The author stopped short there and did not consider the possibility of these monuments having been covered. However, if one admits the comparison he establishes, it would be rather surprising to find tumular burial-chambers corresponding to open above-ground structures but reproducing their plan only. On the other hand, if one were to reconstruct in imagination such monuments as Stonehenge and Woodhenge, giving them a conical turf-covered roof like that of the earth-lodges, one would see that their external appearance would be almost identical, outside as well as inside, with that of a barrow, the mound covering a burial-chamber.

One may note also the analogy—taking into account the climate which is responsible for the difference of material—between Stonehenge and Woodhenge thus restored and the North African monuments of the Médracen type, which are wholly composed of stone (FIG. I and PLATE IV).

If the sepulchral hypothesis is rejected and that of a sacred meeting-place substituted, it should be noted that none of the different examples of sacred places in the open air known by ethnography and archaeology recall this architectural complexity. If it is a question of a temple designed to give shelter for sacred objects and priests, it is necessary that it should have been covered. Moreover the English climate at that date was even rainier than today, and the site itself, open to the winds, would seem very unsuitable for the establishment of an unsheltered sacred place, a roofless temple. If covered, however, the whole thing appears reasonable, and in conformity with the common idea of a temple with its series of enclosures and its general resemblance to an inhabited building.

The colonnade with architrave which forms the façade of the monument is a very characteristic architectural feature, and one which seems hardly intended merely to delimit an open space. The junction of the stones has been effected by mortise and tenon and these are features associated with the technique of woodwork; it seems to indicate that the makers were more carpenters than masons, which is a good reason for supposing that they might have thought of a wooden roof. Finally, on the lintel-stone joining the two highest uprights of the horseshoe, two unexplained mortises have been observed; they could be easily explained as supports for the roof-beams. If such mortises

## ANTIQUITY

do not occur on the other trilithons, one might suppose that it was due to the particular situation of the former, which is not on the same level and situated in the vicinity of the central opening. It would need special *points d'appui*, whereas on the others, which are all of the same level, one could ultimately place horizontal sleepers to support the rafters.

Would the imposition of a roof over Stonehenge appear to be technically impossible? It must have seemed so in the eyes of certain persons, for Fergusson rejected the idea on *a priori* grounds without even discussing it. In actual fact, the space between the two successive circles of supporting-stones being about 7.5 metres, if one assumes an inclination of 30 to 40 per cent. for the roof, which appears to be that of the earth-lodge figured by A. C. Fletcher, the beams should be between 8 and 9 metres long, which is by no means prohibitive for people who raised stones of a weight of 40 tons, and placed on them lintel-stones weighing 7 tons. One could still find such beams in the fine forests of England without the slightest difficulty. The covering of the whole roof with turf was quite possible in view of the existing climate. Moreover a similar procedure is still adopted in Scandinavia.<sup>5</sup>

Thus a series of facts combine to show that the monument of Stonehenge, whether it was a tomb, a temple or a dwelling-place, must have been constructed in a manner comparable with the great wooden houses which were used by certain North American tribes. There seems to be no serious objection to this hypothesis.

As regards other megalithic structures, especially the great trilithons recorded at many places in the East, which resemble huge doorways, it would be desirable to conduct investigations, comparative, excavational, and technical, to see whether these monuments were not merely the relics of larger structures whose other elements, composed of wood, have disappeared.

Archaeology like palaeontology, should be mindful of perishable materials.

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<sup>5</sup> Also in the Hebrides. O.G.S.C.

## Notes and News

### *TRIBULUM*-FLINT FROM SUSSEX

A flint, picked up on the site of the Roman Villa at Poling, near Littlehampton, Sussex, has been submitted to me by Mr E. W. Hulme, because it exhibits a certain degree of polish recalling that on sickle-flints (see *ANTIQUITY*, 1930, IV, 179 ff). It is here described by permission of the finder, Mr E. J. F. Hearne.

The flint is a piece of a flake of honey-coloured chert, 2.1 in. long, 0.8 in. wide, 0.4 in. thick, with parallel sides and triangular section. For purposes of description it exhibits—

- two ends : proximal and distal, each possessing a facet ;
- three surfaces : one bulbar (though the bulb has gone), and two dorsal ;
- two edges : a sharp and a blunt ;
- a dorsal ridge, which is nearer the blunt edge.

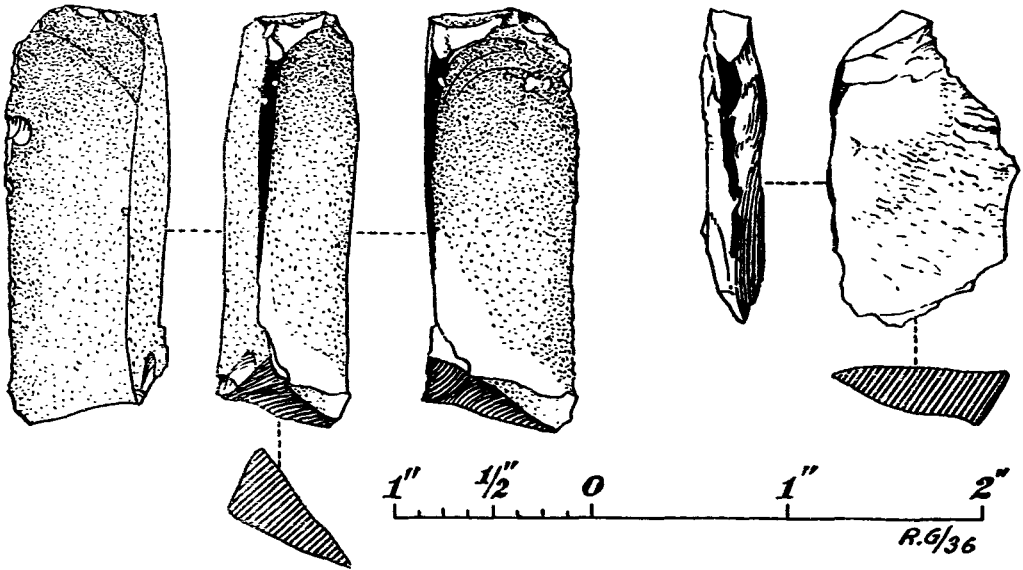
A certain amount of diffuse gloss or lustre is evident over almost the whole of the flint, but attains its maximum intensity at the distal end. At this end the blunt edge has been worn down so as to be smooth, rounded and glossy, and the same feature, but in very slight degree, can be traced round the edges bordering the distal facet. The distal end of the sharp edge shows nothing but slight splintering.

The most striking feature of this flint is the pronounced attrition of the distal end of the blunt edge, which we have just described ; this puts it in a class apart altogether from the sickle-flints which may possess comparable gloss. The attrition and the gloss are different degrees of the same phenomenon, which, so far as we know, is produced by friction against silica or against some substance containing silica. Such substances include sandstone, sand, soil with flints in it, wood, straw and grass. In the case of sickle-flints the gloss is produced by prolonged friction against straw, but this latter is of too yielding a nature to produce attrition of the flint such as we have in the present case.

The writer feels that the key to the solution of the problem is to be

## ANTIQUITY

found by supposing that this flint belonged to a *tribulum*, or threshing-sledge, such as was used anciently by the Romans, and in modern times in the Near East. Mr Crawford recently studied modern examples of this implement in Cyprus (ANTIQUITY, 1935, IX, 335-9), and kindly gave the writer a specimen of one of the flint teeth with which the underside of the sledge is armed. When the Poling flint is compared with this, it is seen to be identical with it in all essential features, and it



Left: TRIBULUM-FLINT FROM SITE OF ROMAN VILLA, POLING, SUSSEX

Right: MODERN TRIBULUM-FLINT FROM CYPRUS

The black areas indicate attrition; the stippling indicates gloss

answers to the general description given by Dr Grahame Clark on p. 335 of Mr Crawford's note.

If the writer is correct in his diagnosis of this flint—and the conclusion seems to him inevitable—special interest attaches to the fact that it was found on the site of a Roman Villa. As to whether such a method of threshing was used in pre-Roman times in Britain we have as yet no knowledge, for it appears that this is the first example of a *tribulum*-flint to be reported from Britain.

For the nature of the *tribulum* and its method of use the reader is referred to Mr Crawford's note, cited above. E. CECIL CURWEN.

## A FLANGED AXE FROM GREECE (PLATE I)

The bronze axe in the Metropolitan Museum of Art, New York, that I am allowed to illustrate here (PLATE I) through the kindness of Miss Richter, Keeper of the Classical Department, is notable both for its form and for its alleged provenance. In shape it generally resembles the characteristic North Italian flanged axes of Montelius' period I of the Bronze Age. But instead of the open 'nick' in the butt that characterizes all axe-heads of the Italian family from the early flanged axe to the late winged palstave, it has a circular hole, apparently cast, in the butt end. Moreover, the object is said to have been found in Greece. The Museum records show that it was actually purchased from a dealer in Athens in 1920. Statements from such a source are admittedly unsatisfactory but there is no particular reason for doubting the dealer's word in this case.

Axe-heads with low flanges, hammered up, have been found at Thermi in Lesbos and in Anatolia, but specimens with cast flanges have not hitherto been recorded from the Aegean area. Generally indeed on the Greek Mainland and adjacent Islands the shaft was put through the axe-head in the Asiatic-Minoan manner and 'celts' were only used as chisels (Mycenae, Sesklo, Levkas), but a flat axe with a very small peg-hole near the butt is known from Kythnos (there are parallels in Cyprus and elsewhere). The large circular hole in the butt of the Metropolitan Museum's specimen is, however, more reminiscent of the 'notch' in the butt of Italian axe-heads. The corners of the notch are normally inturned so that the open space in the butt between them is rather more than a semicircle. Still a completely close circle, such as is here illustrated, is not achieved on any Italian bronze axe known to me. On the other hand a small stone axe-head from grave 2 in the 'Copper Age' cemetery of Rinaldoni near Viterbo (*Bull. Pal. Ital.*, 39, pl. xiv, 6) may be a relevant analogy. The axe is 13.5 cm. long and the splayed blade proves that it is a copy of a metal axe. Right at the butt the body is pierced transversely with a circular hole, 7.5 mm. in diameter, and so, in proportion to the total size, more comparable to the hole under discussion here than the small peg-holes.

To this extent the allegedly Greek axe has distinct Italian affinities, but no exact parallels. On the other hand relations between Mycenaean Greece and Italy with its Alpine hinterland in the early Metal Age are indicated by the amber beads from the Shaft Graves at Mycenae and other tombs, the halberd from Shaft Grave VI (a local product of course) and a chisel from Shaft Grave IV with a row of small gold nails to



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decorate its wooden handle (just as on a narrow flanged axe from an Early Bronze Age grave at Strättlingen near Bern (Åberg, *Bronzeitliche und Früheisenzeitliche Chronologie*, III, pp. 139 ff. and Karo, *Schachtgräber*, p. 103). Italian influences may be presumed to have been stronger in West Greece and might there have inspired the production of a flanged axe using the Italian-Alpine device for steadying the butt, but parallel to, rather than derived from, the mature Bronze Age types of the Peninsula. (A rudimentary notch is observable on stone and flat copper axes from the Mondsee and early hammer-flanged copper axes from upper Italy—cf. Pittioni, 'Italische Kerbe', *MAGW.*, 1931, LXI, 74–80, and Åberg, *op. cit.*, fig. 178).

Thus, while no bronze industry likely to produce an axe like ours is known as yet in Greece, the little comparative evidence available is not incompatible with the dealer's statement. It might at least encourage further researches in West Greece where early 'Peschiera' fibulae are relatively so common, but comparatively few axes of any sort are known.

V. G. CHILDE.

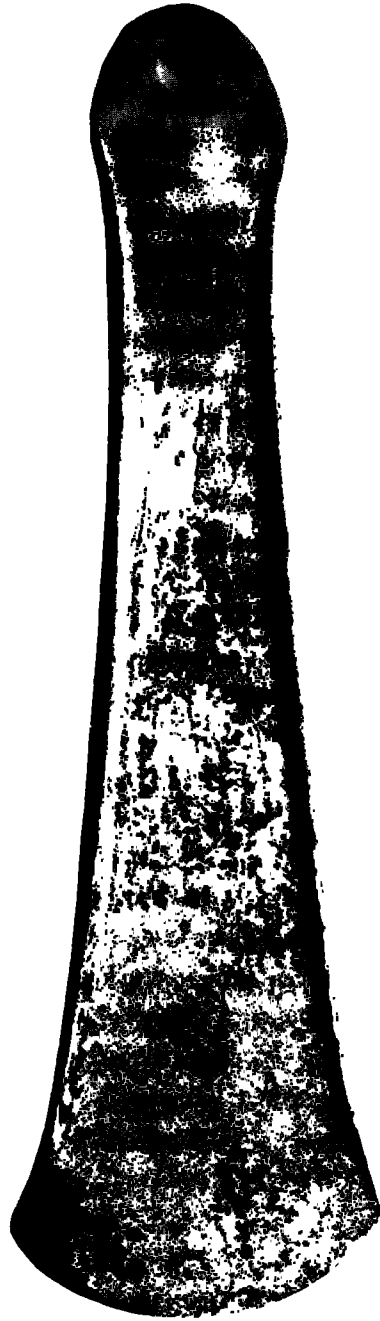
### MEGALITHIC REMAINS, SOUTH UIST

1. On the northern slope of a low hill or common, called Leaval, in Kilbride, at the southwest corner of the island of South Uist, is a dolmen, less than half way up, almost opposite the north-western end of Loch Aisavat, and clearly visible from the road. Leaval common is separated by a strip of fields from the high road which runs from Polochar inn northward through the island.

In its present condition the dolmen consists of four uprights, one of which is rectangular in shape, while the other three are approximately triangular. The uprights are apparently complete and enclose a quadrilateral space, some 5 ft. 5 ins. long east to west, and about 3 ft. 9 ins. broad. The western, or rectangular, stone measures 4 ft. in height above ground and is about 3 ft. 1 in. wide. Immediately opposite is a triangular stone 4 ft. 9 ins. high and 3 ft. 2 ins. wide at the base. One of the other two, the top of which is not shown in the diagram, is somewhat shorter than the others. The uprights all stand in good position, roughly vertical, and are firmly embedded in the soil.

The entrance—on the left of the diagram—faces due south. It has a threshold stone flush with the floor and the borders of the adjacent stones are parallel and nearly vertical. The other spaces are much narrower and more irregular, and in the lower part of one of them a few small stones are built in to fill up the gap, suggesting that originally all

PLATE I



FLANGED AXE FROM GREECE. (See p. 95).

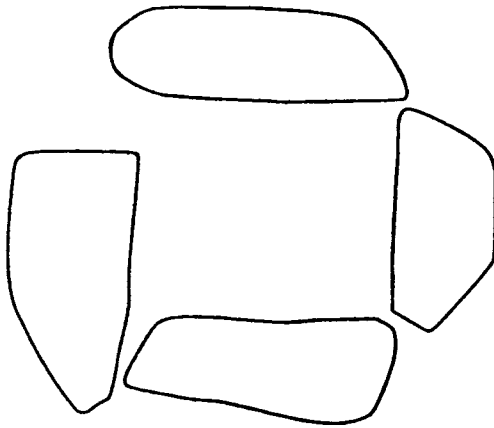
*by courtesy of the Keeper of the Classical Department, Metropolitan Museum of Art, New York*



## NOTES AND NEWS

the spaces between the uprights, except perhaps the entrance, were occupied by dry walling.

Surrounding the dolmen are the remains of a raised platform of earth, approximately circular in outline. The periphery of the platform is outlined throughout by small stones, which lie almost in contact with each other, except for one or two gaps on the southern side. The platform is raised above the ground level only in the north, that is, down the slope of the hill. This enclosure has a diameter of about 67 ft.



Plan.

The dolmen is not placed centrally within it, but much nearer the southern or southeastern circumference. Traces of another circle, not so well preserved, but quite distinct through most of its extent, appear within the larger enclosure. The second circle also surrounds the dolmen eccentrically. Thus, at the south-eastern rim of the platform, the dolmen and its two enclosing rings are all very close together. On the opposite side the smaller circle is about 15 ft. distant from the dolmen and the larger circle about 56 ft. All the measurements are approximate. Few stones now remain in the outline of the innermost circle: two long ones which are adjacent and prone, and two or three additional small ones. Some small stones, partly buried in earth, are disposed irregularly around the base of the dolmen. It would seem

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that the platform represents the base of a round cairn or barrow, which originally covered over the dolmen and its contents. If this supposition is correct the inner circle within the substance of the cairn has parallels elsewhere, *e.g.*, in the horned round cairns of Ormiegill and Garrywhin in Caithness.

The neighbourhood of the dolmen is known locally as 'the Graves', and the dolmen itself as the Witch's Grave. The Gaelic name for the dolmen, however, is Leac-na-bana-bhuidseach. Leac means a slab, flat rock or table-stone. Thus, leac-lighe is a recumbent grave-stone. Leac-na-bana-bhuidseach would mean 'the Witch's table-stone' or 'grave-stone', a name that appears to recall memories of a time when a capstone was present.

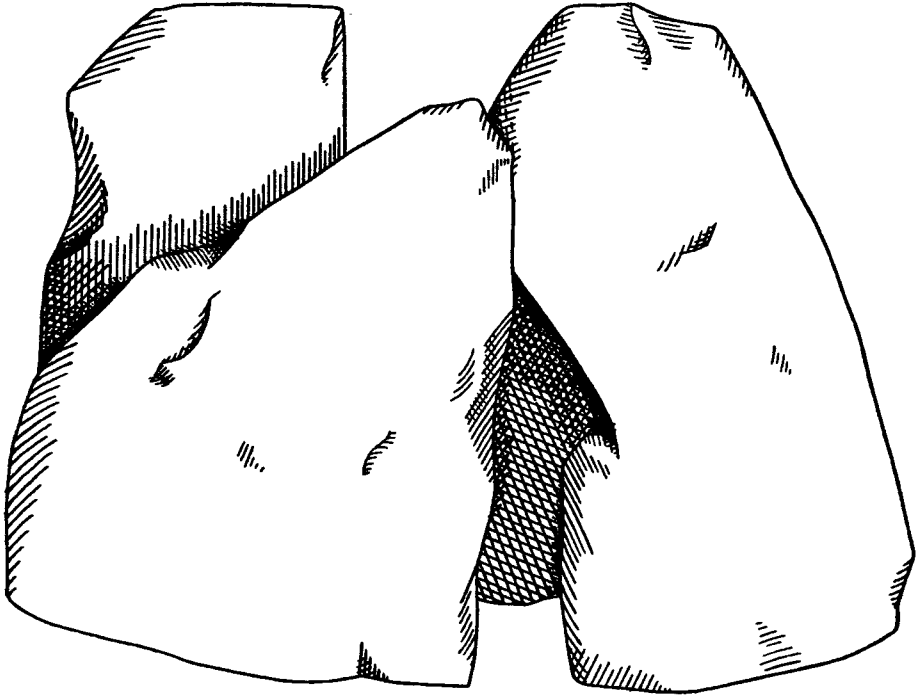
2. Nearer the top of Leaval are two prostrate long stones lying a few feet apart. One of these is about 11 ft. 8 ins. long; the other 12 ft. 6 ins. The two are very similar in general appearance and have obviously been roughly worked. They are square in section at one end, but taper on two opposite sides towards the other. These stones are apparently fallen menhirs. They are now in grave danger of being broken up, as the base of one has recently been drilled in order to break off a squared section for building purposes. Fortunately, the stone appears to have fractured during the process and the attempt was abandoned. Locally the stones are known as 'limpet hammers'. I could obtain no information as to the origin of this name, nor of any legend associated with it. Possibly it is not of very ancient origin and derives from a humorous reference to their chisel-like appearance.

3. Not far from the fallen monoliths is a very curious structure that at first sight resembles a large capstone perched on very low uprights. The stone is somewhat boat-shaped and about 12 ft. 6 ins. long and 5 ft. broad in the centre. Its flat top is 32 ins. from the ground. The long axis lies east and west. Owing to the curvature of its under surface the space between the latter and the ground varies from 8 to 18 ins. The stone must weigh at least 3 tons. It rests securely on a slight cairn, or bed of earth and small stones piled beneath its centre, and does not rock.

These structures all appear to be examples of the local Archaean gneiss. Apparently they have not hitherto been recorded. I came across them quite by accident on the 21 July 1936. They are not mentioned in the Report on the Outer Hebrides of the Royal Commission on the Ancient and Historical Monuments of Scotland (1928); they are not marked on the Ordnance Survey map of Lochboisdale and

## NOTES AND NEWS

Eriskay (one inch to one mile) ; nor is there any mention in the volumes of the Proceedings of the Society of Antiquaries of Scotland to which I have had access. The discovery of the dolmen appears to be important as dolmens in Scotland are very rare. Daniel Wilson (*The Archaeology*



Dolmen from the East.

and *Prehistoric Annals of Scotland*, 1851), mentions the following : (1) a trilithon in Stirlingshire ; (2) several in Orkney, *e.g.*, the stones of Veà, a group at Vestrafiold ; and one in the ring of Stennis ; (3) two in the Isle of Arran ; (4) one in Forfarshire ; (5) several in Argyllshire—near Dunoon, in Cantyre, at Ardchattan, and at Achnacreebeg ; and (6) that at Bonnington Mains, Mid-Lothian, known, like the South Uist example, as The Witch's Stone.

A. RUGG-GUNN.

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### THE CHILTERN WHITE CROSSES (PLATE II, p. 104)

It may be worth inquiring whether any evidence exists of the age of these two turf cuttings, which have attracted less discussion than the more spirited white horses and giants of Uffington, Cerne Abbas, etc. The *Victoria County History of Buckingham* (I, pp. 189-90) offers no pre-18th century evidence of the age of either Cross, and the Royal Commission on Historical Monuments (*Buckinghamshire* I, p. xxii and II, p. 8), while conjecturing that they may be late Celtic, confesses that nothing definite is known of their origin.

As will be seen from the air-photograph (PLATE II) the Whiteleaf Hill figure is in the shape of a Greek cross and is perched rather oddly on a large triangular 'base'. The cross is about 80 ft. overall in each direction and the width of each arm is about 20 ft. The turf cutting on Bledlow Hill, the next promontory of the Chilterns beyond the Wycombe Risborough gap, is closely similar, except that it has no 'base'. It is 75 ft. across with arms 15 ft. wide.

It is just possible that Bledlow Cross is mentioned in a document of 1350. In the Calendar of Patent Rolls there is an entry, dated 18 September in that year, recording an appointment to take and bring before the bailiffs of Edward, Prince of Wales, numerous persons indicted of 'felonies done together within the liberties of the honors' of the said prince 'of Walynford and St. Valery'. Among these ill-doers is 'Henry atte Crouche of Bledelowe'. 'At the Cross of Bledlow' is interpreted by Professors Mawer and Stenton (*Place-Names of Buckinghamshire*, p. 168), as a place-name, Bledlow Cross, and, if this is correct, it is plausible to infer a reference to the hill-figure. Mr O. G. S. Crawford has suggested, however, that 'atte Crouche' should be read as equivalent to a surname, the phrase being interpreted as 'Henry Attcross, of Bledlow', and, in the light of the frequent occurrence of 'atte Crouche', 'atte Cros', 'atte Bury', etc., as surnames in the fourteenth century, this view appears almost certainly correct.

If this be so, the earliest reference which appears to exist to either cross is in a work by Francis Wise, Radcliffe Librarian, entitled 'Further Observations upon the White Horse and other Antiquities in Berkshire', (pp. 58), dated 1742. The following is an extract from this account (p. 34), which is the main source of the information given in vol. 2 of Lipscomb's *History of Buckingham*, 1847:—

'Whiteleaf Cross in Buckinghamshire, so called from the hamlet of Whiteleaf in the parish of Monks-Risborough, is an

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antiquity of the same kind with the White Horse ; being formed after the same manner, on the side of an high and steep chalky hill facing the South West. The perpendicular line of the Cross is near 100 feet in length, and about 50 in breadth at the bottom, but decreasing upwards till it scarce exceeds 20 at top. The transverse line is about 70 feet in length, and 12 in breadth and the Trench cut into the chalk is about two or three feet deep. It is formed besides upon a large Basis, whose height seems to be almost equal to the perpendicular line . . . The common people have learned to call this base *The Globe*, but I think improperly, its form approaching nearer to that of a triangle . . .

‘ Though the Cross is in no more danger of being totally obliterated, than the Horse, yet the like custom prevails of Scouring it up with a Festival ; but this has of late years observed no regular revolution. The common people still preserve some imperfect traditions concerning contributions raised upon this occasion, and even from some of the Colleges in Oxford. But if any estates have been formerly charged with the expence, time has long since made void the obligation : and the scouring is performed at the expence of the neighbourhood, but never without a merry making ’.

Lipscomb adds that in 1826 the cross was repaired and re-marked by the Earl of Buckinghamshire ; and on his heirs the duty of cleaning it still rests in virtue of an Enclosure Act of George IV. It was presumably then that the cross assumed its modern form, which, it will be noticed, differs widely from that described by Wise. Thus the shaft, which was sharply tapering, has been given parallel sides ; the arms have been lengthened from 70 ft. overall to 80 ft. and widened from 12 ft. to 20 ft., the width of the modern shaft. The base also, which approached ‘ nearer to a triangle ’ than to a ‘ globe ’, has been made into a strict triangle and, if any reliance at all can be placed on Wise’s illustrator, considerably enlarged laterally. It may be noted that Lipscomb in the course of a circumstantial description of the construction of Bledlow Cross (loc. cit. p. 110), which was then much overgrown, gives dimensions of 30 ft. overall in both directions with arms 6 ft. wide ; in 1847, therefore, it was less than half its present size. This is a warning that the present plans of the crosses are little evidence of their original plans.

In this connexion it may be mentioned that it has been conjectured (*e.g.*, V.C.H. Bucks. I, 189) that the two crosses were originally phallic



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symbols, the arms being subsequent additions designed to remove their magic efficacy. Following this line of thought, a reference to Whiteleaf Cross has been seen in a charter of A.D. 903 (Birch, *Cartularium Saxonicum*, 603) regarding the grant of land 'aet thaem easteran hrisan byrge', i.e. at Risborough. Among the boundary marks is Weland's 'stocc', i.e. pole, tree-trunk, and this it has been thought means the Cross (cf. H. J. Massingham, *Through the Wilderness*, p. 293 ff. quoting Professor F. G. Parsons, with whom the theory originated). Reference to the charter, however, shows that the 'stocc' is reached by going along a 'straet', which means a Roman, or at least a paved, road, and no such can have passed under Whiteleaf Hill.

It might be suggested that the 'Globe', the name which Wise tells us the common people applied to the base of the Cross in 1742, threw some light on origins. It seems probable however that this name arose from mere fancy, the vaguely rounded base, surmounted by the cross, suggesting the royal orb. In the 17th, and largely in the 18th, centuries this element in the regalia was known as the globe (N.E.D. *ad loc.*). One can imagine such a trope adorning a coronation sermon in the parish church. It is difficult not to doubt that the base is of similar natural origin to that of the triangular bare patch on the slope of the Chilterns known as the Watlington White Mark.

The only further evidence available, so far as is known to me, is that derived from place-names. In the charter quoted above the reference to 'thaem easteran hrisan byrge' is interpreted by Professors Ekwall, Mawer and Stenton as 'the eastern brushwood-covered hill', from Anglo-Saxon 'hris', brushwood (*Place-Names of Bucks.*, p. 170). This then was the name of Whiteleaf Hill in 903. In 1541 Whiteleaf village appears as Whitt Light and in 1766 the Cross appears as Whitcliffe Cross in T. Jefferys' map of Bucks. Commenting on these forms Professors Mawer and Stenton say:—'The modern form is corrupt. The hill and cross must have been named from the white chalk hill in which the cross is cut. Cf. Whitcliff (Gloucestershire) which is Whytleyff in 1540'.

From this evidence it is difficult to infer any considerable antiquity for Whiteleaf Cross. It was indeed already regarded as an antiquity by Wise in 1742—he thought it commemorated a Saxon victory over the Danes—but ingenious gentlemen of that time were easily satisfied, and the peasantry were complaisant to their desire for traditions of great age. In itself Wise's statement hardly puts the Cross back before 1700.

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The place-name evidence gives further ground for caution. The 10th century charter reference to the hill makes no use of so convenient a descriptive feature as a cross. The present name in its true form of Whitecliff ignores the cross and seizes on the steep area of uncovered chalk which is now the 'base' of the cross.

If the claim to antiquity of Whiteleaf Cross suggests doubts, that of Bledlow Cross provokes a more active scepticism. For Wise does not merely ignore that hill figure; he seems to imply that in 1742 it did not exist. 'There is a village about a mile or two from it', he says when speaking of Whiteleaf Cross (*Further Observations*, p. 40), 'which seems to point out the very spot on which the battle was fought: Bledelawe or Bledlow for that is the name of it, implying the Bloody Hill'. This implication is further enforced by the following extract from a letter addressed by J. Collins from Newport Pagnell to Stukeley in 1757 (*Memoirs and Correspondence of William Stukeley*, ed. 1883 II, 10). I am indebted for this reference to Mr Stuart Piggott, who has also very kindly made extracts from Wise's not easily accessible work:—  
' . . . there is a Danish camp at Bledlow, near Prince's Risborow; and about two miles east of that place, on the side of a chalky hill, called White Leafe, is a large white cross, cut in the side of the hill, which may be seen as far as Oxford, 20 miles distance. This cross is thought to be in memory of a victory obtained over the pagan Danes, by king Alfred '.

The first notice of a cross at Bledlow seems to be in a paragraph in the *Gentleman's Magazine* for 1827 (xcvii, part 2, p. 79), where a description is given so similar to that printed by Lipscomb as his own in 1847 that it may well be the source of the latter. The conclusion that the Cross was made between 1757 and 1827 can thus be avoided only by assuming that it was so overgrown on the former date as to be then unknown and that it was found and cleaned at some time prior to 1827, by which date it had again become partially overgrown.

On the data available, therefore, we can hardly exclude the possibility that Whiteleaf Cross may be relatively modern, perhaps 17th century, and we must believe that Bledlow Cross was made in the later 18th century. Whiteleaf would have been formed by extending the central waterway of the old uncovered chalk area to make a tapering shaft and adding small arms; its present form as a Greek cross and the broad, triangular shape of the 'base' would be due to the repair of 1826. Bledlow would have been cut as a small copy of Whiteleaf, without a 'base', and enlarged to its present respectable dimensions after 1847.

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That these suppositions would not be without analogy appears from the evidence of Wise himself. Speaking of the White Horse at Westbury, Wilts., where also the people had 'instituted' a revel or festival', he says that it had 'been wrought within the memory of persons now living, or but very lately dead' (*Further Observations*, p. 48). A more circumstantial story exists of the making of the turf cutting on the ramparts of Wandlebury Camp on the Gogmagog hills. Mr C. W. Phillips has very kindly called my attention to a passage in John Layer's manuscript work on Cambridgeshire, written c. 1640, as follows:—'I could never learn how these hills came to be called Gogmagog hills, unless it were from a high and mighty portraiture of a giant wch the schollars of Cambridge cut upon the Turf or superficies of the earth within the said trench, and not unlikely might call it Gogmagog, which I have seen but is now of late discontinued'. (Camb. Antiq. Soc. Octavo Publications, 1935, LIII, 110). The 'discontinuance' was of the giant; the meaning, for which 17th century parallels can be quoted, being that the figure was no longer kept up and had become overgrown. Evidently it was cleaned again, since we hear of it in the early 18th century, after which it seems to have been swallowed up, with so much of Wandlebury Camp, in the construction of Lord Godolphin's gardens.

In the light of this undergraduate frolic we may consider again the vague testimony of Wise's informants about the scouring at popular merry-makings of Whiteleaf Cross. It is difficult to avoid the suspicion that, within then living memory, the brighter youth of the two Risboroughs had borne their share in shaping the monument as it existed in 1742.

Measured plans of the Whiteleaf and Bledlow Crosses will be found on plate VIII of Sir Flinders Petrie's *Hill Figures of England* (Royal Anthropological Institute, 1926).

W. LINDSAY SCOTT.

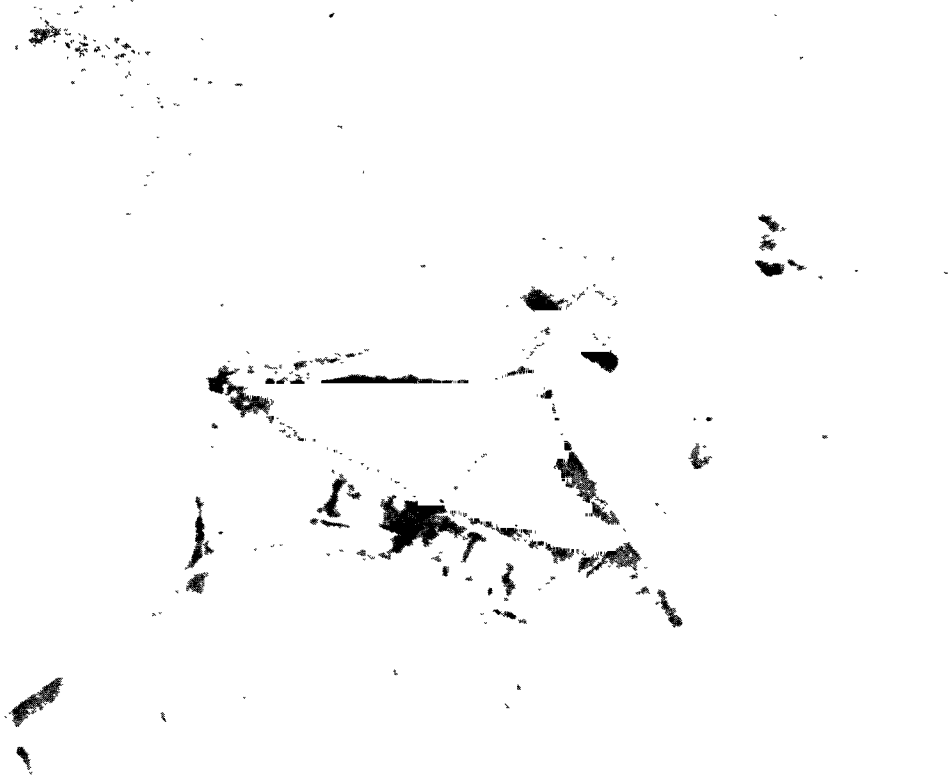
## THE CALLEVA OF EPPILLUS

Certain coins of the Belgic prince Eppillus, son of Commius, bear the signature *Calle*, which has generally been taken to indicate that his capital was Calleva. The distribution of his coins, however, indicates that he ruled in Kent, so that, as Mr G. C. Brooke has said,<sup>1</sup> his capital can hardly have been Calleva Atrebatum, which is Silchester

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<sup>1</sup> ANTIQUITY, 1933, VII, 283.

PLATE II



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TURF-CUT CROSS, WHITELEAF HILL, BUCKINGHAMSHIRE (See p. 100)  
*ph. R.A.F. Crown copyright reserved*



in north Hampshire. Silchester is believed to have been founded as the capital of his father, Commius, whereas the Belgic king of Kent is likely to have had as his capital the hill-fort of Bigbury, near Canterbury, which is now generally regarded as the scene of Caesar's first attack on a fortified position in Britain.<sup>2</sup> Both Silchester and Bigbury are situated on Tertiary soils which are likely to have been well wooded in a state of nature, and are still so to a large extent ; moreover Caesar describes Bigbury as being hidden in the woods, as it is today. The name Calleva is said by Professor Ekwall to be related to the Welsh *celli*, a wood,<sup>3</sup> and the fact that Silchester was known as Calleva of the Atrebatas suggests that there may have been at least one other Calleva in the territory of some other tribe. Putting together these facts and inferences it seems reasonable to suppose that Bigbury may have been called Calleva Cantiacorum, or some such name, and that it was to this site that the signature *Calle* on the coins of Eppillus referred. Canterbury, the successor of Bigbury as the 'capital' of Kent, was known as Durovernum Cantiacorum, or the 'fortress by the alder-swamp of the Kent-men',<sup>4</sup> a name which looks like a pointed contrast with Bigbury, the 'woodland stronghold of the Kent-men'. E. CECIL CURWEN.

### CAMBAY BEADS

Mr H. S. W. EDWARDES writes :—Your article in the September number on Cambay and the bead trade makes no reference to the flourishing bead industry at Bida, the capital of Nupe in Nigeria. I was District Officer at Bida for some years between 1905–1911 and saw the method of working. Beadmaking, glassworking and brass ware had been important industries for generations, and the product was distributed widely by traders. The cornelians and agates were brought down from somewhere north of Bornu by caravans. In the workshops at Bida they were ground down on large flat stone slabs brought from the Jebba district. A man sat on the ground before one of these slabs, which was kept wet, and rubbed the cornelian backwards and forwards in the arc natural to the position. The drilling of the hole in the finished bead took a man a day, and was done with a small drill tapped with a light hammer.

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<sup>2</sup> *B.G.*, v, 9. See R. G. Collingwood and J. N. L. Myres, *Roman Britain and the English Settlements* (1936), 44–5.

<sup>3</sup> *Oxford Dict. of English Place-Names* (1936), s.v. SILCHESTER.

<sup>4</sup> *Ibid.*, s.v. CANTERBURY.

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The finished beads, in shape and material, were indistinguishable from those of early Egyptian make in the British Museum. The price of a necklace of these beads in Bida market was from two to four pounds. Frobenius in his *Voice of Africa*, page 444, refers to the Bida bead-working. He states that the imported raw material consisted largely of ancient beads from the Sahara. I cannot confirm or deny this.

‘ I have some old and rough beads from Nigeria, much like those you illustrate, but none of the fine Bida work in red cornelian.

‘ I suggest that, though evidently beads have been imported from India in quantities and for a long time, there is no doubt that the making of cornelian beads is a native African industry of great antiquity ’.

The above was sent to Mr A. J. ARKELL, the writer of the article in *ANTIQUITY*, 1936, x, 292-305, who replied :—‘ When I wrote my article, I knew of the bead-making industry at Bida, but as I had no firsthand evidence about it, I did not mention it. Recently, however, Mr P. A. Legetmeier, the present District Officer at Bida, has very kindly sent me some interesting information together with specimens of the beads made at Bida. He writes : “ I also enclose three specimens of stones polished at Bida by local stone-polishers, who rub the stones by hand on flat stone slabs. Also two stones as imported, one mottled grey and one red. Both these stones have been drilled through the centre. Sometimes imported stones are received undrilled, and they are then drilled locally. Stones are not cut at Bida, only polished. I regret I can tell you little about the stones or their origin. The Bida polishers buy the rough stones at Kano. I understand that some come from the Atlas mountains and some are brought from Egypt ”.

‘ The two imported stones sent me from Bida are without doubt two modern Cambay beads. They have the polish still on them : one is of grey agate of the type of fig. 1 (*ANTIQUITY*, PLATE I, 296) and the other is of carnelian of the type of fig. 10 (*ibid.* PLATE II) illustrated in the plates accompanying my article.

‘ Two of the three worked beads sent from Bida are long barrels, one of grey and one of white agate, very similar to the second bead from the left in my fig. 17. They are of a higher polish and more regular shape than the usual modern Cambay bead. I should imagine that they have been rubbed down from beads of the type of my fig. 3. The third worked bead is a cylinder of carnelian about  $1\frac{1}{2}$  inches long, with a short taper at one end. It is not very elegant, and could have been

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made from a Cambay bead of the type of my fig. 10, like the one sent in an unworked condition.

‘ I have asked Mr Legetmeier to send me specimens of the undrilled stones and of those which are said to come from the Atlas mountains. I shall be surprised if the Bida workers can bore a long hole in a stone as hard and brittle as agate. I suspect that the undrilled stones will turn out to be jasper or serpentine which are occasionally worked into beads in Africa. It is just possible that they may be the Garamantian carbuncles mentioned by Pliny, for which I have been searching for some time.

‘ I have now no doubt that most of the agate and carnelian beads worked at Bida come from Cambay. In addition to the evidence of the beads from Bida themselves, Mr Edwardes states that the carnelians and agates were brought down “from somewhere north of Bornu by caravans”. The easiest caravan route from Egypt to the Sudan (using that term in its wide sense) runs from Cairo *via* Siwa, Augila, Murzuk, and Bilma to Bornu, whence there was a main road westwards to Kano, as may be seen on map XIII of Bovill’s *Caravans of the Old Sahara*. On p. 295 of my article I mentioned that the Cambay merchants of Cairo till recently sent beads to Kano by caravan. Further the present District Officer at Bida states that the Bida craftsmen get their stone beads from Kano, and had heard that some of them came from Egypt.

‘ It is interesting to note that while beads of the type of my figs. 1 and 10 cost a penny or so each at Cairo, they fetch from 1s 6d to 2s by the time they reach Bida.

‘ I am grateful to Mr Edwardes for drawing attention to the bead-making at Bida, but I think that a genuine native African carnelian bead industry has yet to be found’.



## Reviews

MATHEMATICS FOR THE MILLION: a popular self-educator. *By* LANCELOT HOGBEN. *George Allen and Unwin*, 1936. *pp.* 647 *and over* 200 *illus.* 12s 6d.

Why should a book on mathematics be reviewed in a journal devoted to archaeology? One obvious reason is that every science, including ours, makes use of mathematics. The archaeologist ought to be able to apply trigonometry intelligently in surveying a site and its environs; he ought at least to know how latitude and longitude can be determined by observations on the sun and in what sort of ways times and seasons might be demarcated by the stars. He should also be prepared to make more extensive use of mathematical methods, but should at the same time be aware of their limitations. Nowadays there is a tendency to believe that a subject is scientific only in so far as it uses mathematical language—to quote a recent book, ‘the more scientifically accurate knowledge becomes, the more must its truths be expressed in mathematical terms’. Now, of course, we all want to be scientific. How convenient if we can achieve that distinction by dressing up our observations in mathematical formulae! A fine corrective to such vain expectations is Hogben’s exposition of the idea (valid only within certain limits) that mathematics is essentially a certain kind of language with its conventions nicely adjusted to its functions, but possessing in itself no peculiar veracity. Perhaps the least accurate way of reporting the stratigraphy of a site would be to write:—‘A ware: level IV, 147 sherds; level III, 14; level II, 0’; . . ., if all the 147 sherds from IV might well belong to a single pot whereas the 14 from III were rims of as many distinct vessels.

Still, many of us believe, probably with justice, that statistical methods might help us to be more scientific. Having been trained in classics, we may be too much overawed by the calculations involved, or the symbols employed, even to find out how we could use them; but we may still bow to the authority of those who can employ a language we are now too lazy to learn. I long ago recognized that the ‘Cephalic Index’ gave no useful information about the relationships of prehistoric corpses. But I am convinced that an index, obtained by combining a vast number of measurements with the aid of an electrical machine in accordance with a, to me, incomprehensible formula, must possess great value—*mana* indeed! The careful reader who has worked his way to page 640 in this book, doing the exercises as he goes along, will at least understand what statisticians

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talk about and what their favourite symbols mean. On his way thither he will have learnt or recalled the relatively simple rules of geometry, trigonometry and astronomy that he now needs in his archaeological capacity.

Most of this he should indeed have learned at school. If he did not or has forgotten it, bad teaching is to blame. Hogben's book shows how even this sort of mathematics can be made interesting. Not that 'Mathematics for the Million' means 'Mathematics without Tears'. That only a charlatan would pretend to purvey. The book is serious and demands close attention and active participation by the reader. It is true that its author has 'gilded the pill'. The gilding takes the form of often sarcastic comments on dialectical materialism, the Nicene Creed and other relevant topics. The asides are so witty that chapters I to V shortened the tedious journey from Edinburgh to London better than my usual Poirot, and gave my fellow-travellers the spectacle of a sober antiquary convulsed with laughter—over a book on mathematics.

But it is not really this gilding that makes the book both readable and educative, but the historical method of presentation. Principles and methods are presented not as parts of a perfect system of truth existing eternally in boring isolation from human needs, but as discoveries men made in the great adventure of civilizing themselves by mastering external nature. Multiplication and fractions, theorems about angles and circles, graphs, the calculus, the theory of probability, are presented as responses to men's need to estimate the yield of a field, to determine the season for sowing, to find his position at sea, to calculate the range in using artillery, to devise a reliable clock, to avoid losses in insuring merchant cargoes and so on. In a word mathematics is presented as part of men's cultural equipment, and the development of the several processes is correlated with historical changes in that equipment as a whole. And this is a second and more fundamental reason for mentioning the book in *ANTIQUITY*. Mathematics is one of the subjects which archaeology ought to be 'about'.

The archaeologist has now made substantial progress in his primary task of classifying his 'celts' and his 'camps' for arrangement in museum cases or plotting on maps. He can now allow himself the luxury of recalling that his relics and monuments were made by men for intelligible human purposes. He can try and interpret them as adjustments to an environment and as applications of science. The progressive emancipation of *Homo sapiens* from brutish dependence on the external environment presented by Nature has been due to increasing application of systematized knowledge about Nature. In the careful selection of stones for tools and in the colouring of a pot even the prehistorian can recognize palaeolithic geology and neolithic chemistry. Presumably there was a prehistoric mathematics too. Of course, in default of writing, its instruments—rules for reckoning for instance—have often perished. Still archaeology

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can safely infer the perishable bow and arrows from the more permanent arrow-heads. So there are relics and monuments from which the application of rules can be inferred, and others which may themselves be instruments of measurement or observation. The sort of rules which our forerunners and ancestors may be presumed to have needed and used may be discovered in the present work. Hogben's discussion of the difficulty and social importance of measuring time will make some speculations by orientationists seem more worthy of serious attention and indicate how they may be checked. 'Prehistoric astronomy' is of course a happy hunting-ground for cranks, but the hints here given are quite reasonable. They will not lead to the sort of absurd fancies 'justified' by non-existent markings on the stones of Stonehenge (*Wilts. Archaeological Magazine*, XLVII, 530).

Professor Hogben is by training a biologist. His book involves excursions into prehistoric archaeology, into Greek, Indian and Chinese philosophy, into the history of navigation and of artillery and all sorts of other domains. In a work of such vast scope specialists in particular spheres will no doubt find statements which to them are false. I could thus condemn some passages myself. But they do not in the least detract from the value and importance of the book as a whole. The first four impressions were disfigured by a rather large number of misprints. These (as well as the old-fashioned dating of a Chinese book) have been corrected in subsequent editions. Readers in possession of uncorrected copies may obtain a list of *corrigenda* by writing to the publishers.

V. GORDON CHILDE.

POMPEII. By R. C. CARRINGTON.\* *Clarendon Press, Oxford, 1936. pp. XII, 197, 24 plates, 21 figs. and plan. 10s 6d.*

This excellent book fills an empty place in many respects. It absolves the English student of Pompeii from foreign general descriptions, and should enable the visitor to the site to get about without missing any essential point. The student of Roman history will also find that the work is a thorough scholar's presentation of the historical and social environment of the town, in which all ages of reader will discover something attractive. The achievement is no mean one, for Pompeii still remains, of all excavated Roman towns, that which can give us the most varied and the most intimate glimpses of the social order.

The arrangement of the material is therefore of much importance, and Mr Carrington is to be congratulated upon his presentation. He begins by describing the eruption which made the town famous, and later made excavation possible. The controversial question of the town's early development is

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\* Copies of ANTIQUITY containing Mr Carrington's illustrated articles on 'The Etruscans and Pompeii', and 'The Ancient Italian Town-House' can still be obtained (3s each, 24 Parkend Road, Gloucester).

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skilfully handled, without bias, and gives the opportunity for a comparison with Herculaneum. Municipal and public life, closely connected with amenities and amusements, are next discussed. In private life, the chapters on town-houses and country dwellings are highly instructive, showing clearly the effect of fashion upon their design, curbed and at the same time guided by economic circumstances. The conversion of an old country-house into a factory reads like an instance from much more recent history, and emphasizes the essential universality of this phase of development. This leads naturally to the influence of private enterprise on public life, and to a description of the activities of the forum, its food-markets, cloth-hall, exchange and law-court, while the cults reveal, in the next chapter, the legacy of more primitive habits which clung about all the activities of life. The contractual deities, born of the locality and of the Roman colony, the gods of trade, and the countless guardian-spirits of street and home, remind us of the few generations separating this urban development from a simpler life more heavily darkened with terrors, whose every step required the sanction or help of unseen powers. When so many of the obligations remained to be fulfilled, it is small wonder that imported cults had made little impression, and that they were connected either with foreign trade or with foreigners themselves. The work closes with an interesting chapter upon architecture and art, which is full of excellent points. It gives a clear picture of the standards of art in a world where high living had blunted the perceptions of men devoid of artistic education, who were content to have their art manufactured for them in a cheap and vulgar market. As might be expected, the effect is of crude comfort, unrelieved by imaginative perception or good taste. But this is only one side of a general picture which has so stimulating an effect, that the book may be very heartily commended to all who would contemplate the bearing of antiquity upon modern thought and life.

I. A. RICHMOND.

**THE GREAT WALL OF HADRIAN IN ROMAN TIMES.** By PAUL BROWN. With numerous illustrations by the author and CONSTANCE WHYTE. *Heath Cranton, new and revised edition, 1936. pp. 125, 4 plates, 38 plans, and text-illustrations, 3s 6d.*

The first edition\* of this book appeared in 1932 and the author now offers a second, revised, edition at a cheaper price. It is intended, to quote Mr Brown's preface, for the 'very large number of people who, while they possess little or no expert archaeological knowledge, are yet greatly interested in the Roman Wall', and it is then with this aim in mind that the book must be judged. A brief discussion as to how the Wall came into being is followed in successive

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\* Reviewed *ANTIQUITY*, VII, 239.

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chapters by reconstructions of certain typical sites along it, as they may have appeared in the Roman period. The fort, civil settlement and milecastle at Housesteads and the fort at Chesters—sites that the visitor with little time to spare, should visit first—are described in more detail. Concluding chapters refer briefly to other forts along the line of the Wall (8) and help the reader to keep in touch with current excavations (9).

The plates are good. The reconstructions (pls. 1-3 and figs. 3, 8, 10 and 25) are most useful and will answer many of the questions that are asked by the ordinary visitor to the Wall, if the reviewer's experience is any guide. In figs. 10 and 21 the names of the other main streets of a fort might have been inserted, while the 'inner courtyard' of the *principia* was more accurately a large, roofed hall (pl. 2 and figs. 10 and 22). The scheme of small drawings in the text is sound and likely to appeal to the reader, but many of the drawings themselves are quite inadequate. Figs. 11-12 do scant justice to Samian pottery; figs. 6 and 16 require redrawing to a larger scale, while fig. 34 is useless. Mistakes occur; the reviewer has noticed 1903 for 1898 (p. 47); buildings, for rooms (pp. 59-60); appertures (p. 62); was for were, and south for north (p. 63); eastern for western (p. 71); second for third (p. 78); *ballistae* (p. 96); former for latter (p. 102): the description of a hypocaust requires amplification (pp. 63-4), preferably with the help of a diagram, for its mode of action appears to be far from clear to numbers of visitors to Roman sites. The blocking of milecastle and fort gateways was not necessarily a late feature (pp. 73-4).

Finally, in the 'Conclusion' (pp. 119-21) there are some mis-statements likely to lead readers astray. Mr Brown advances as an argument that the Wall 'was a success', that the Wall-ditch was never completed. The ditch actually accompanies the Wall wherever the ground requires it, except for a few hundred yards at one point where it is unfinished owing to the special conditions prevailing there. The 'Wall frontier' includes both Wall and ditch, and sectional variation provides no argument for or against the efficacy of the whole, while the counter-argument as to its inadequacy, that the frontier fell four times, is useless unless the state of the garrison at the time is taken into account.

K. ST. JOSEPH.

EXCAVATIONS AT MINTURNAE. Vol. 1, Monuments of the Republican Forum. By JOTHAM JOHNSON. *Philadelphia: University of Pennsylvania Press*, 1935. pp. vi, 122, with plan and 45 figs. 22s 6d.

This volume describes an American excavation of the site of Minturnae, an Ausonian town on the west bank of the Liris, and the most southerly of Rome's early maritime colonies, founded in 295 B.C. on the fringe of Campania.

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The place began as a small rectangular post, very like Roman Ostia or Pyrgi in plan, about 182 by 155 metres in size, with a wall of polygonal masonry and projecting angle-towers. Outside its west gate lay a temple precinct, containing the shrine of three gods, with three sides bordered by a portico, and the fourth open to the main street (Via Appia). This was built about the opening of the second century B.C., and replaced an earlier temple and shops, the latter so thoroughly removed as almost to escape notice, but heavily burnt. A fire caused by lightning also destroyed the later temple and portico after 65 B.C., an act of God commemorated by a *bidental*, or ritual pit, containing fragments of the burnt work. The architectural features of the rebuilt structure include stuccoed fragments of considerable interest to the student, both for their rarity and their design. The area thus rebuilt did not, however, satisfy the needs of the more spacious Imperial Age. A larger portico was built on the other side of Via Appia, while the space enclosed by this one was occupied by a second temple, perhaps connected with the Imperial Cult, and the north bay of the portico was occupied by the dressing-rooms of a theatre. Later, the south ends of the portico accommodated fountains.

While this small and interesting area may now be considered fully studied, it remains to define its relation to the city at large. The key to this matter lies in the history of the fortifications, which are to be described by Dr Maiuri elsewhere. Until this description appears, it will be difficult to assign these buildings to their proper place in the development of the Roman *colonia*, and to discern their relation to the earliest fortification. Similarly, the coin-list, which unfortunately does not include two important hoards already published elsewhere, lacks the information about the later history of the town which should be its corollary. It is to be hoped that future volumes will gather together these various yet interesting threads into a unified presentation. I. A. RICHMOND.

DER OSTSKANDINAVISKE NORDEN WÄHREND DER ÄLTESTEN METALLZEIT EUROPAS (Skrifter utgivna av Kungl. Human. Vetenskapssamfundet i Lund, XXII). By J. E. FORSSANDER. Lund, 1936. pp. 296 and 80 plates.

The astonishing wealth and variety of the Northern Stone Age are no longer taken as evidences of its exceptional antiquity or originality; they are admittedly due to the persistence of a neolithic economy when even Atlantic and Danubian peoples were organized for the use of metals. This fact, recently stressed once more by German authorities like Böhm, Schwantes and Sprockhoff, is fully admitted by Forssander and once more demonstrated by his well documented and illustrated analysis of the Northern material. But he argues that the reaction against the old notions of Montelius and the extravagances of

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incompetent disciples like Reinerth has gone too far. The now celebrated hoard from Bygholm in Jutland certainly demonstrates that two-thirds of the Northern Neolithic Age—the Passage Grave and Stone Cist epochs—were contemporary with a fully developed Metal Age not all too far away. But that need not mean that the greater part of the Passage Grave epoch already ran parallel to the Early Bronze Age of Britain or the Aunjetitz culture of Central Europe. In his first chapter Forssander is at pains to establish the reality of a Continental Copper Age, anterior to Aunjetitz, in which the axes, dagger and arm-cylinders of the Danish hoard might find a place of origin. The general association of such copper flat-axes with the northern Megalithic culture (first noted by Kersten of Kiel) is well demonstrated by the map on p. 11, but this shows too that they need not be derived from the West as, though restricted to the coasts in the North, they spread across Germany towards Central Europe. Moreover, though objects of Aunjetitz type have been found in passage-graves, they are associated, as Nordmann too has insisted, with the later interments in such family vaults and with relics proper to the Stone Cist period.

This period itself cannot be treated as a mere phase of transition from Passage Grave Stone Age to Tumulus Bronze Age, but as equal in length to the former; in Västergötland, for instance, 4266 out of 7372 Stone Age finds belong to the Stone Cist epoch. It is the Stone Cist epoch that is as a whole contemporary with the Aunjetitz phase in Central Europe. But as far as grave-furniture is concerned Scandinavia was still formally neolithic; the finest flint daggers, the 'fish-tailed' type IV, imitate bronze-hilted metal daggers of the advanced Aunjetitz phase. Still a native metal industry was already beginning in the North during this period. Its earliest products are the northern flanged-axes of Pile type (the North German bronze-hilted daggers of this age are not Northern and reach Denmark and Scandinavia only sporadically). These native Pile-axes reveal Anglo-Irish rather than Central European inspiration. Later on products of this native metallurgy appear in graves. But the types now characterizing this developed Period I of the Northern Bronze Age—socketed spear-heads and short-swords—are inspired by Central European models. Yet they must not be derived from the first period of the Central European Bronze Age: though parallels occur in a few late Aunjetitz hoards, the ancestors really belong to the phase of transition from Early to Middle Bronze Age (*Früh- to Hochbronzezeit*) and are to be found in such hoards as Hajdu Samsón and Cascina Ranza. Still inspired from Central Europe, the native craftsmen advanced to the superb productions of Northern Period II. And the native industry, at first confined to the extreme south, was now established in Central Sweden too (while only 55 axes of Period I are known from Central Sweden as against 161 in Scania, the figures for Period II are 218 and 245 respectively).

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Still even then stone cists were still being used as burial places, and Central European weapons of Reinecke's phase c were still being copied locally in flint, like the Aunjetitz daggers before them. Expressed in absolute dates Forssander concludes that the Passage Grave epoch should begin about 2200 B.C., and end towards 1800—a century after the beginning of the Aunjetitz culture. Period I of the true northern Bronze Age (socketed spearheads) would then begin about 1550 B.C.

For the demonstration of this thesis Forssander is not content with a penetrating analysis of the local material. The above results have been disentangled from long excursions into the prehistory of regions as far away as Hungary and Spain. In these digressions the author has necessarily to rely mainly on second-hand information, but the summaries and illustrations comprised in them are convenient and often illuminating. We may commend for instance the distinction between the primary type of polygonal battle-axe, common to Scandinavia and Copper Age stations in the Alpine zone, and the secondary type, found in Danish dolmens, and the overlap between northern dolmen period and Alpine copper age deduced therefrom. Again the map on p. 84 of Early Bronze Age hoards reasonably attributable to merchants (*i.e.*, containing more than ten objects) graphically shows how the economic system of the Central European amber route was separated by a conspicuous gap in the Rhineland, Switzerland and Central France from the contemporary Atlantic system (one south French dépôt should, however, have been included in the map). Though twice as many octagon-hilted swords have been found in the Northern province as in Central Europe, a minute study of their decoration shows that, even when the designs look Northern, the specimens from the former area are all imports. Forssander uses this instance effectively to show the deceitfulness of mere distribution as a clue to origin and applies this to Hajdu Samsón swords.

In the Iberian Peninsula Forssander rightly insists that Bell Beaker pottery must not be treated as an unitary chronological group. But unfortunately he does not extend the same caution to Central European bell-beakers which he, like Åberg, Burkitt and Childe, and most other authorities, wrongly treats as marking a sharply defined chronological horizon. Still more unfortunately he accepts the dogma, 'unanimously admitted by British archaeologists', that the beginnings of a metal industry in the British Isles coincides with the Beaker-folk's advent—a dogma now abandoned thanks to the researches of Chitty, Fox, Grimes and Mitchell. As a result his conception of British chronology in relation to the Northern is distorted. Had our author considered the (Late Bronze Age) British spear-heads imported into Schleswig-Holstein early in Northern Bronze Age II, he would have recognized that there was some confusion.



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On the other hand, the alleged British spear-head he cites from Sporupland in Jutland is really a native dagger like that from Uelsby, Schleswig. Incidentally the footnote to p. 60 dismisses far too cavalierly the observations made by Rosenberg, the most experienced and most successful excavator in the North, on the position of the Beaker sherds in the Kirke Helsing tomb.

In discussing absolute chronology Forssander pours well-deserved scorn on those who claim the East Alpine Copper Age culture as Northern because it comprises types (polygonal battle-axes and flint sickles) which recur in the North, respectively in the Dolmen and the Stone Cist periods. But he assigns to the Copper Age Hungarian axes which, for all their composition, cannot be older than Aunjetitz. And the evidences for synchronisms—similarities between the *Fussschale* of Bodrogkeresztur and Troy I, or between the profile of the Hajdu Samsón swordblade and the Shaft Grave halberd—are not of a kind to yield reliable results. Finally 74 out of 102 figures want scales. Still the book is indispensable for any archaeological library. V. G. CHILDE.

ZUR ÄLTEREN NORDISCHEN BRONZEZEIT (Veröffentlichungen der schleswig-holsteinischen Universitätsgesellschaft, Reihe II, 3). By KARL KERSTEN. Neumünster; Karl Wachholtz Verlag. pp. 176 and 61 plates. 18 RM.

Kersten's monograph forms a supplement to Forssander's and is equally indispensable. It is concerned exclusively with the first three periods of the Northern Bronze Age, while in the Swedish work the emphasis is on 'end of the Stone Age'. But here the method is very different. Kersten gives a minute but compressed typological analysis of the bronze weapons and ornaments, starting from the rich but little-known grave-groups in the Kiel Museum but comprehending also the principal collections in Denmark and southern Sweden. But, apart from a good account of the graves in which the bronzes have been found, he avoids as far as possible digressions into other aspects of Northern culture and comparisons with other provinces.

He here publishes for the first time the proof that the copper flat-axes were brought by coastal trade and used by the Megalithic people, though the map illustrating it is far less clear than that given by Forssander. But he abstains from the finer subdivisions of the first native Bronze Age, attempted by the latter. For Kersten, Period IA in the North is represented by early imports—the axes, predominantly British—associated as at Tinsdal with flint daggers distinctive of the early Stone Cist period of Denmark and Sweden. The 'first period of independent bronze industry in the North' is phase IB. But he has already to distinguish three zones in the Northern province which preserve their identity in later periods. Zone I comprises northern Jutland, the Danish

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islands and Sweden ; zone II practically coincides with Schleswig-Holstein ; while zone III lies further south. In zone II period I B is represented by a number of grave-groups, whereas in zone I it coincides with the later Stone Cist phase of the Northern Stone Age. First in period II does the true Bronze Age begin in zone I and first then does a distinctively Northern style emerge and the Northern province of Bronze Age culture assert its individuality over against other regions. But now and in subsequent periods zone I is shown to be the focus of Northern culture ; zone II is already provincial. Only in zone I are Sophus Müller's fine typological divisions practicable ; period II can be subdivided into three phases in zone I as against only two in zone II. 'Sophus Müller's subdivisions are not applicable to the whole of the Cimbrian Peninsula, let alone to all Central Europe to which Kossinna had tried to apply them'. Kersten further remarks that in many barrows of zone I stone cists occur in contrast to oak coffins or mere 'Steinpackungen' and suggest a persistence of the old megalithic tradition. He concludes that in Denmark and Sweden the megalith-builders had preserved some measure of cultural independence, whereas they had been totally absorbed by the Separate Grave (or Battle-axe) folk in southern Jutland and Schleswig-Holstein. It would be their traditions which gave its peculiar brilliance to the Bronze Age of zone I. And it is this happily blended culture that should be regarded as distinctively Germanic.

Kersten's book is as essential for a correct appreciation of the chronology of the first half of the Northern Bronze Age as is Broholm's well-known 'Study' for the second. The good illustration of the Liesbüttel group links up this Northern chronology with the British. And the method adopted for presenting the frequencies with which the several 'Leitfossilien' are associated is novel and instructive.

V. G. CHILDE.

**CORPUS DU FOLKLORE PREHISTORIQUE EN FRANCE ET DANS LES COLONIES FRANCAISES.** Edited by P. SAINTYVES. Volumes I-III (vol. I out of print). Paris : Librairie E. Nourry, 62 Rue des Ecoles, 1934-6. 220 francs.

The study of the folk-lore of megaliths and other prehistoric remains has always received more attention in France than in this country, partly because of the greater quantity of material, especially in Normandy and Brittany. Some fine work was done in this field between 1890 and 1910 by Salomon Reinach (*Cultes, Mythes et Religions*, tome 3) and P. Y. Sébillot (*Folklore de France*, tome 4).

In 1930 an appeal was issued by Monsieur E. Nourry (under his pseudonym P. Saintyves) for information on the folk-lore of prehistoric monuments and

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implements. This appeal contained a bibliography and questionnaire for collectors of original material, and was circulated to members of the Société du Folklore Français and the Société Préhistorique Française, and anyone else interested. The result is the three volumes before us, which are the work of M. and Mme. Saintyves and a number of other members of the societies in question.

Volume I contains about 80 papers on different aspects of the prehistoric folk-lore of France and the French colonies, by a large number of contributors. Among the most interesting of these papers are :—(1) that by G. Guenin on the stone-cult in Gaul, compiled from records between the 5th and 10th centuries A.D., which gives a mass of information relating to the various edicts forbidding stone-worship ; (2) that by A. Lambert and P. Saintyves on prehistoric folk-lore in the Old Testament, which may be compared with the relevant parts of vol. II of Frazer's *Folklore in the Old Testament* ; (3) that by P. Saintyves on the theme of megaliths which go to drink or bathe.

Nearly all the remaining papers in this volume are regional studies.

Volume II opens with a masterly paper, 294 pages long, by P. Saintyves on ' Folklore des Outils Préhistoriques et des Pierres de Foudre '. Although he has focused his attention on France and the French Colonies he has drawn upon almost the whole world for parallels in his exposition of the lore of arrow-heads, celts, holed stones and other articles. He has consulted several English works, but appears to have missed Henry Balfour's papers on ' Thunderbolts ' (*Folk-lore*, vol. 40). Among other contributions to this volume is a long paper by Arnold van Gennep on prehistoric folk-lore in Savoy (pp. 295-386).

Volume III is concerned entirely with the north and northwest coasts of France, especially Brittany, Normandy and the Channel Islands. The section on the Channel Islands is by P. Saintyves, who has drawn freely on MacCulloch's *Guernsey Folklore*, but does not appear to have consulted J. H. L'Amy's *Jersey Folklore*. Saintyves' bibliographies of the French material are however very exhaustive. Each item throughout the whole work is numbered, thus greatly facilitating reference, and this reference is made easier still by the provision of very full indexes at the end of volumes II and III. These indexes are the work of Mme. Saintyves, whose arduous task has been extremely well done.

It remains to touch upon some of the subjects referred to.

The petrification motive is illustrated by the well-known story of St. Cornély transforming his pursuers into stones and thus forming the Carnac avenues. There are at least three petrified wedding festivities (588, 1862 and 1943) similar to that of Stanton Drew, but there seems to be no really close parallel to the Rollright tradition.

Fairy lore is very common, and relates not only to fairies dwelling in the

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mounds and megaliths, but also to the megaliths having been constructed by fairies who carry the stones on their heads and under their arms while continuing to spin, or else carry them in their apron (a common legend with megaliths and cairns in Wales and Ireland). I have failed to discover any parallels to the Berkshire Wayland Smith legend, which seems to have originated in Scandinavia or north Germany.

The movements of megaliths—turning round, dancing, or going to drink or bathe when the clock strikes twelve or when the cock crows—are extremely common. The stone may take a century to complete the turn (113), or turn so quickly that no one can see the movement. It may drink at midday (339) or, more usually, at midnight, and its movements may occur every day or night, or only on Christmas Eve (341) or only once in a century (91). Some of the stones expose vast treasures when they move, but quickly return to their place and crush any would-be pillagers.

We note (1925) a menhir in Finistère supposed to conceal treasure. Someone dug at the base of it for the treasure, but the menhir fell on top of him and crushed him by way of punishment. There is the legend (2261) that one of the stones of the Carnac avenues conceals a treasure, but the hundreds of other stones were placed near it so that it would be impossible to know beneath which stone to dig. The key to the problem is in the Tower of London!

As in Cornwall, the Cotswolds and elsewhere, many of the French megaliths, especially those incorporating holed stones, have the attribute of curing diseases (1353-6) or of promoting fecundity in the newly married (1899, 2001, 2244).

Among the many references to christianized megaliths are (2070) a dolmen with a chapel built round it, and (2492) a menhir formerly surmounted by a cross; this stone was at one time crowned with a garland every spring. Offerings are or have been made at many other megaliths described in these volumes.

Up to the present no illustrations have appeared in this work of megaliths and earthworks with folk-lore attached to them, but perhaps these may be included in another volume which is promised.

In this monumental work M. and Mme. Saintyves and their collaborators are not only publishing an exhaustive survey of the prehistoric folk-lore of their own country, but also setting an example for students in other countries to follow. Is it not time something similar is undertaken in this country?\*

L. V. GRINSELL.

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\* The time is past; in England we are always too late. Folklore and handicraft began to disappear in England at the enclosures when the traditional life of the peasantry was destroyed by the land-owners. The process was completed when the landless peasants flocked to the industrial centres to sell all that was left to them, their labour. No such violent break occurred in France, where the peasant is still a force to be reasoned with and village life has preserved its traditional form and with it many of the age-old traditions.—EDITOR.

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ANNUAL REPORT OF THE BOARD OF REGENTS OF THE  
SMITHSONIAN INSTITUTION, 1935. *Washington: Smithsonian  
Institution, pp. 580. 1 dollar.*

Readers of *ANTIQUITY* frequently write and ask the Editor where they can find a good general account of some ancient culture or prehistoric period. Often the answer is—in a back number of *ANTIQUITY* or in one of the forthcoming numbers. Failing that it is more than likely that it will be found in one of the Smithsonian Reports. It would not be proper for so young a journal as *ANTIQUITY* to commend the work of a world-famous Institution that will soon be celebrating its centenary. But the fact remains that its Reports are but little known, at any rate outside academic circles, in this country. That is unfortunate for this country; for it indicates a lack of interest in the progress of science. True that British science is well represented in this and previous Reports, which have regularly contained reprints of articles by British scientists (including several articles first published in *ANTIQUITY*). But it is not likely that one would find a copy of the current Report displayed in a bookseller's shop, even in a University town. Yet the price is about equal to that of this number of *ANTIQUITY*, and the number of pages is more than four times as great. There are no less than 95 half-tone plates and numerous black and white line-blocks in the text. No better general conspectus of the annual progress of science can be found anywhere, though the Presidential Addresses delivered to the various sections of the British Association, one of which is reprinted here, provide somewhat similar fare.

The Report opens with the reports of the Secretary (Dr C. G. Abbot) and of the Executive Committee, occupying 87 pages. The rest of the volume is devoted to a General Appendix which furnishes 'brief accounts of scientific discovery in particular directions; reports of investigations made by collaborators of the Institution; and memoirs of a general character or on special topics that are of interest or value to the numerous correspondents of the Institution'. The present Report admirably fulfils these objects. This is not the place to review the non-archaeological articles, though they have been read by the reviewer with the greatest interest. They deal with such branches of science as meteorology, astronomy, physics, biology and geology. The last five articles (110 pages altogether) are archaeological, four of them concerned with the archaeology of America and one (by Robert H. Pfeiffer) with 'The Excavations at Nuzi (Kirkuk, Iraq) and their contribution to our knowledge of the history of the Hurrians'.

Dr Hrdlička discusses 'The Coming of Man from Asia in the light of recent discoveries'. The coasts of Alaska and the adjacent islands have yielded no really ancient inhabited sites; none, that is, that can be dated back to the

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period of the original Asiatic immigrations into America. For such sites 'have been washed away, or so covered with silts or loess and jungle that to locate the remains is now impossible' (p. 465). He concludes also 'that not only was no land connection [with Asia] needed for such a passage but that, had the same existed man would not have used it; he would have followed the much easier route over the water' (pp. 465, 6). 'As to the Old World ancestry of the American Indian, it is ever more strongly indicated by the accumulating evidence that this connects with the earlier Neolithic man of Asia and through him with the Magdalenian and Aurignacian man of Asia and Europe' (p. 469). The general position is summarized as follows: 'The main indications are that man came over very gradually and disconnectedly over a long period of time; that he brought with him differences in type, language, and culture; that at least some of the culture he carried was already far advanced; that according to all indications he did not proceed to people America across the mainland, but by skirting the western and southern coasts of Alaska; and that the Eskimo, the last comer, in his two types is a blood relation of the Indian' (p. 469).

Mr N. C. Nelson discusses 'The Antiquity of Man in America in the light of Archaeology', and reaches the conclusion 'that man did not reach the American continent until some time after, but probably incidental to, the general disruption caused by the last ice-retreat, and that he came as the bearer of the partially developed Neolithic culture, somewhere between 5000 and 10,000 years ago' (p. 506). The Folsom flints (see *ANTIQUITY* 1936, x, 495) may be a faint far-off echo of the Solutrean flint industry of Europe, but it is 'extremely doubtful' whether it reached America during the Solutrean period of Western Europe. On the other hand 'the close relation of the Old and New World Neolithic would seem to be attested by the fact that the two cultures had at least 85 objective elements in common (54 being stone implements), besides strong similarities among several other less material traits' (p. 495).

Mr Frank Roberts contributes a fine 'Survey of South Western (North American) Archaeology'. Here the succession of cultures is based upon stratification, though its value has only been practically realized in quite recent times. Absolute chronology has been obtained by correlating the growth-rings of ancient beams, found in pueblos, with equivalent sections of giant trees whose cutting date was known.\* The method has been given the name of Dendrochronology, and promises to do for later periods what the Geochronology of De Geer is doing for the earlier ones. It is interesting to recall that 'when

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\* See an article by the inventor of the method; 'Dating Pueblo Bonito and other ruins of the Southwest', by A. E. Douglass. (*Nat. Geogr. Soc., Con. Techn. Papers, Pueblo Bonito Series, no. 1, 1935*). We have been trying for a long time to obtain for *ANTIQUITY* an authoritative account of this new and extremely important technique.

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dendrochronological dates became available, it was noted that the conclusions reached previously had been correct, although the estimated time-lapses had been much too great' (p. 512). The culture of the southwest is divided chronologically into two main groups, that of the Basket Makers (subdivided into three, the first being at present still hypothetical) and of the Pueblos (subdivided into five). The author does not give us absolute equations, but states that the first Pueblo period was 'in full flower in the North [of the southwestern region] by 777 A.D.' (p. 527).

In passing it may be noted that the second Basket Maker period had 'no true pottery but large containers of unfired clay tempered with cedar bast, the chaff of corn tassels, or grass heads'. It was 'molded in baskets or built up without the aid of molds' (p. 518). Does this represent an independent invention of pottery? If so it is all the more interesting in that it seems to have occurred in the manner already predicated (without evidence) for the same invention in the Old World. On the other hand Dr Roberts states that 'from the manner in which maize culture and ceramics is gradually developed among [the Basket Makers] and their successors, the Pueblos, it seems probable that the Basket Makers were from the start subject to influences from more advanced cultures in the south' (p. 493). But was it independently invented there?

Another interesting side-light is that even among these primitive prehistoric peoples there were collectors of antiquities! 'Even among the Indians there are and were devotees of the "antique", and the archaeologist occasionally stumbles upon a choice collection of objects which belonged to such a person' (p. 520).

O.G.S.C.

LES VICHAPS. By N. Y. MARR and J. I. SMIRNOV. Mémoires de l'Académie de l'Histoire de la Culture Matérielle, I. *Leningrad*, 1931. pp. 107, 24 plates, 11 text-figures. 10 roubles.\*

*Vishap* in Armenian, *Veshap* in Georgian, means a dragon, a guardian of springs and a ravisher of maidens, but the word and its Turko-Persian equivalent *Azhdaha* is applied to great monolithic sculptures in the highlands of Armenia, which however turn out to be unmistakably fish. They were first discovered in 1909 by our authors, when excavating the Graeco-Roman temple at Garni; they lie up the Garni river towards lake Sevang on the plateau Gegham (lat. 40° 15', long. 45° E.). Soon afterwards Smirnov gave a straight-forward account of them and Marr a reasonable one, both reproduced here, to archaeological societies: now Marr publishes photographs and adds a characteristic preface, quite unintelligible.

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\* See also a short note on the philology of the word *vishap* by E. Benveniste in *Revue des Études Arméniennes* (Geuthner, Paris, 1927) VII, fasc. 1, 7-9.—EDITOR.

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A *Vishap* is a monolith in the form of a fish with eyes, gills and fins indicated, the largest is some 15 feet long. There is no sort of pedestal to hold it horizontal, and it can hardly have been set up vertically; yet a vertical position would suit certain secondary linear carvings, most usually, as it seems, the head and hanging skin of an ox, also pairs of affronted storks. There does not seem to be any real evidence as to their date; our authors would put them in the first half of the last millennium B.C. Those here published from the Gegham are in four groups of about five each. More recently others have been discovered on Mount Alagöz, 50 miles to the northwest, and on the Toporavank plateau 70 miles further on. Similar stones are reported from the Maikop district north of the Caucasus, and one at Turan in Tannu Tuva (Uryankhai) in northwest Mongolia. They are among the strangest remains of which I have ever read. I should incline to think that they are some sort of water-charm, set up near springs in connexion with sacrifices to River-gods. E. H. MINNS.

EXCAVATIONS AT THERMI IN LESBOS. By WINIFRED LAMB. *Cambridge University Press*, 1936. pp. 226 and 50 plates. 52s 6d.

The people responsible for the well-known black-polished pottery in Western Anatolia formed one settlement at Troy and another at Thermi in Lesbos. Living as a pastoral community they developed slowly and without much vigour but apparently lived in peace in the northeast Aegean. The first settlement at Thermi developed into a second, but the main contact was in both settlements with the Asiatic mainland, as far as present excavations can inform us. Some small contact with the Cyclades is indicated by the importation into the second settlement of Cycladic marble bowls and by the imitation of Cycladic pins. Battle-axes indicated contacts with the north and east and are earlier in Lesbos than in Greece proper. The second settlement evolved normally into a third, but a general decline now sets in though the reasons for it are not known. The fourth settlement is a new start and its later stages prove to be contemporary with Troy II. Lesbos was a minor dependency of the Trojan centre, and shared with it contacts with areas extending along the north Aegean coast. But just as Troy II modelled and remodelled its defences, so Thermi V heralds a large defensive system. At the close of the Early Bronze Age Troy II is utterly destroyed and Thermi V abandoned. Fortunately several recent discoveries have made it possible for the present excavators of Troy to push back the date of the destruction of Troy II to about 2300 B.C. The fifth settlement at Thermi is known to have ended shortly before this catastrophe. The site is thus provided with a fairly solid chronology, and Miss Lamb dates the first Thermi to 3200 B.C.

The abandonment of the site at the close of the Early Bronze Age, due to Asiatic disturbances, was not permanent. It was occupied again after a period



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and lasted down to 1200 when, with Troy, it ended in a vast conflagration. Now that we know that Troy VII A is the last Troy and the Troy of the final destruction, we can equate the last Thermi exactly with it.

The interruption between Thermi v and the later settlements does not necessarily presume the arrival of a new race. Miss Lamb concludes that there was not much change in the types of artifacts.

The quality of the pottery of Thermi is not high. It comes at times up to the Trojan standard, but this does not say much. Yortan and Cycladic shapes are common and the Trojan shapes are consistently followed.

The report is lavishly published and is admirably arranged. It will serve as a standard for comparison with other Anatolian sites. Few points call for criticism: one is worth mention; the author accepts Davies' views on the neglect of copper-working in Cyprus in the Bronze Age. It is a view that can no longer be held. Cypriot copper was mined in that period. But both metal and Mycenaean imports are exceedingly rare at Thermi. It was undoubtedly a small provincial settlement, of no importance in the larger world. But as such it is a more useful site to study than the larger and more complicated sites.

STANLEY CASSON.

THE GREAT CHALICE OF ANTIOCH. By GUSTAVUS A. EISEN. *New York: Fahim Kouchakji, 1933. pp. 22, with coloured plate and illustrations. \$1.50.*

Grail-hunting is not yet dead. Mr Eisen, having made up his mind that in this piece of metal-work we have the Holy Grail, proceeds, with complete disregard of archaeological method, to prove it. The title of 'chalice' leads us well on the way, and criticism that the decoration cannot be as early as the date required for the Last Supper has persuaded the author to dissociate the interior of the cup from the exterior, despite the fact that most ancient plate is so constructed. The interior plain cup is now the claimant for the high honours in question. Looking for the evidence to prove his hypothesis Mr Eisen with little difficulty finds it. We are told that in A.D. 362 the Antioch 'cathedral treasurer' had hidden the sacred treasures. He died under torture and they were never recovered. The 'reliquary' containing the inner cup is also a term which begs the question. Having entitled the outer decoration thus, the author finds no difficulty in explaining its normal wear and tear, due to handling, as caused by the 'kissing of the relic'. (I have yet to see how kiss-weathering can be proved!) He then notes that pieces have been cut out of the rim as souvenirs of so sacred an object. They are more probably cuttings made by goldsmiths to test the value of the metal. He examines the figures of the apostles and of Christ and sees in them exact portraits, when in fact they are variations of

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types. ' Each single figure he says is instinct with life ' and he explains this by telling us that this was due to ' a simple procedure employed by the majority of Greek artists from early archaic times ' by which they always represented their figures ' when the lungs are filled with air '. Seeing that all the figures here are heavily draped it is impossible to see any indication of their deep-breathing—quite apart from the truth of the generalization. All the figures are exactly identified, and for dating the author brings comparison with a Boscoreale cup and with the Naples glass cameo vase. This establishes for him a 1st-century date. But the two representations of Christ (the only certain identification) can be exactly paralleled by the 4th-century seated stone statue of Christ in the Terme museum at Rome (here not noticed) and the vine-scrolls are clearly to be associated with similar scrolls on late Roman and early Byzantine work such as the pillars of Aphrodisias. The Boscoreale comparison will not hold, for the seated Augustus is in a totally different attitude from the seated Christ, whose position foreshadows that of 9th-century Byzantine and Romanesque. The ' chalice ' is all one piece and several centuries later than here stated. The exhibition of this cup at the World's Fair at Chicago and its claim to be the Holy Grail have brought much comfort to the pious. But in fact it is a very fine example of church plate of about A.D. 500, no more. It must, as such, be fitted into its proper place in early Christian art. The ' syndicate of Arabs ' who first found it were not, after all, the modern equivalents of Gawain, Percival and Galahad.

STANLEY CASSON.

SENNACHERIB'S AQUEDUCT AT JERWAN. By THORKILD JACOBSEN and SETON LLOYD. *Illinois: University of Chicago Press, 1935. pp. 49, and 36 plates. 23s 6d.*

This absorbing monograph is a model of its kind. The authors can claim the merit of being the first to discover that the causeway of stone, first noted by Layard, as leading from the city of Nineveh to Bavian in the hills, was in fact part of an immense bridge, more than 300 metres long, the oldest known bridge in existence. Both King and Layard considered these remains to be a roadway, and local inhabitants thought that it was an ancient dam. The authors followed Olmstead's hint in 1908 that it might be a canal of great size. They also found the missing portions of the great inscription which finally prove that we have to do with a colossal aqueduct constructed for the purpose of supplying Nineveh, as part of Sennacherib's grandiose plans for the general embellishment of the city and the irrigation of its lands, and the making of orchards and parks, which he undertook at the beginning of the seventh century B.C.

The fine photographs and plans here published show the details of this causeway-canal, with its bridge and its sculptured stelai at the canal-head. The

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publication is completed by a note by Professor Frankfort on the local anthropological types, illustrated with plates which show the persistence of ancient Assyrian, Armenian and Mediterranean types. Attention is also called to the survival among the Yezidis both of knowledge and use of the aqueduct and of ancient rain and fertility rites. The name of Tammuz survives among Yezidis as Melek Taus, and the red anemone of Adonis is still placed on one shrine in spring.

This is a model publication, comprising much hard travel and laborious research. The full publication of the canal inscriptions and the informative photographs make this a volume which even non-Assyriologists will enjoy.

SHORT HISTORY OF GREECE. By DAVID M. ROBINSON, Professor, Johns Hopkins University. *New York* : 37 East 36th Street, 1936. pp. ix 227. Price 3 dollars.

We are told in an introductory note that this is ' the first book on Greece to be written from the point of view of the history of civilization '. It roams over a wide field, beginning with the early excavations of Ilios and ending with Aristotle's theories of sex-determination. It appears to be based on lectures delivered to a junior University class, to whom it is necessary to explain that a tetradrachm is worth four drachmas ; and this may account for the colloquial style, the anecdotes of Schliemann's domestic troubles, the apocryphal legends of Demosthenes with pebbles in his mouth and Isocrates expiring on receipt of the news of Chaeronea, and various seemingly irrelevant statements.

A young reader will be amused by the playful remarks that Olympias was a bit wild and kept snakes in her bed ; that Philip was ' rather given to drinking ' and ' flirted with a Thessalian girl ' ; they may even be impressed by the not very original statement that ' Homer was the Bible of the Greeks ' ; but they may well be puzzled by such words as *rhyton*, *thalassocratic* and *philocalic*. To maturer Hellenists it will be a shock to find that *Seisachtheia* means an earthquake, *mēros* a side, and *kyrbeis* laws.

On the historical side the work is radically unsound ; thus, it seems to be implied (p. 51) that the small population of Attica in the 6th century was due to the scarcity of money ; and the statement that Pisistratus, after his second exile, ' became once more a constitutional ruler ' (p. 53) requires a good deal of salt. Recent historians, again, do not find it ' a strange coincidence ' that Gelon, when he might have helped the Greeks against the Persians, was himself hampered by a Carthaginian war (p. 90). Perhaps ' coincidence ' is ' wrote sarcastic ', but the statement that ' the old democracy of Solon and Dracon was restored with unlimited franchise ' (p. 129) cannot be excused even as a ' goak '.

On the scientific side it is rash to imply that Empedocles had any notion of

## REVIEWS

the circulation of the blood ; and it is unbelievable that archaeologists discovered in the Ceramicus thirteen skeletons of Spartans with arrows still piercing their hearts (p. 128) ; this is, presumably, a rhetorical way of saying that human bones and arrow-heads were found in the same grave. I have not been able to find in the *de Anima* any suggestion that Aristotle attributed sex to plants.

I have not checked the archaeological sections, for here Dr Robinson, who has himself superintended excavations at Olynthus, is presumably on safer ground ; but considering the book as a whole I should hesitate to put it into the hands of students whose critical faculty was not well developed. J. F. DOBSON.

A HISTORY OF THE GREEK WORLD FROM 479 TO 323 B.C. By M. L. W. LAISTNER, Professor of Ancient History, Cornell University. (Vol. 5 of Methuen's History of the Greek and Roman World). *Methuen*, 1936. pp. xv, 492, with four maps. 15s.

Mr Laistner is thoroughly familiar with his authorities, both ancient and modern, and shows a critical instinct and sound judgment in striking a balance between divergent views. If he dissents from a generally accepted opinion he states his reasons dispassionately. This is noticeable in his treatment of the difficult period of the *Pentekontaetia*, with which his book begins. The Peloponnesian war is described with as much detail as space allows. The petty wars and jealousies of the rival states in the fourth century have always been a weariness both to the teacher and the student, and if Mr Laistner has failed to make this period interesting, he has failed in good company,

When we come to the Macedonian period we can see our way more clearly, owing to the unity of purpose in the two great characters who dominate the stage. The author does full justice to the genius of Philip as a diplomatist and an organizer, and to Alexander's skill as a general. He regrets that ancient authorities treated this side of Alexander's character almost exclusively, to the neglect of his constructive policy, and he endeavours, as far as the paucity of material allows, to rectify this omission.

Taking a general view of the book, we feel that it might have been made more interesting if the writer were rather less impartial and dispassionate—a quality which is justly claimed for him on the wrapper. He displays no prejudices or enthusiasms. We may suspect that Alcibiades is something of a hero to him, but he is careful not to say so. We do not get a clear enough picture of the personality of Pericles to understand the extraordinary hold which he had over the Athenians ; nor again is the strength of the opposition to him sufficiently explained. Even the treatment of Alexander is somewhat mechanical.

As a supplement to the history proper, Mr Laistner gives us valuable chapters on special subjects, such as Warfare, Government, Economic conditions,

## ANTIQUITY

Art and Literature. In the first he dwells on the revolution wrought by Philip and Alexander in methods of warfare. He might, when praising the Macedonian siege-machinery, have emphasized more strongly the importance of its mobility, which enabled catapults not only to be transported from place to place, but even, on occasion, to be used as field artillery in a general engagement. It is rash to say, without explanation, that a trireme was propelled by a single bank of oars arranged in threes—this is to identify the Athenian warship with the Venetian galley of the Middle Ages, and other views are still current. The remaining chapters show the same qualities of care and precision which characterize the narrative ; and, though neither part would be complete without the other, we consider the latter to be the more successful, and therefore the more important part of the book.

J. F. DOBSON.

L'ALSACE ROMAINE. By ROBERT FORRER. *Paris : Librairie Ernest Leroux. 25 francs.*

Starting from Julius Caesar's intervention in 58 B.C. against Ariovistus at the invitation of the Sequani, M. Forrer gives an admirable and scholarly account of the whole Roman occupation of Alsace, based on the numerous archaeological finds and inscriptions.

The population was effectively Romanized at an early stage, and it is interesting to see how designs and ideas become altered in the process, and take on a new virility through their contact with barbarism. Notably, the Mithraic god Eon assumes a most un-Roman moustache, while Apollo lives again as 'Le dieu Abolo'.

Many aspects of civil life are dealt with, and there are chapters on the different types of castellum, pottery, armour, and sculpture. Some of the latter reach a very high standard, particularly the beautiful relief of Mithra killing a bull, discovered in fragments at Königshofen.

In spite of the destruction of their temporal power by the Germanic invasions, M. Forrer traces a continuity of certain aspects of Roman civilization lasting down to the present day, manifested, for instance, by numerous place-names, such as Saverne, which is derived from Tres Tabernae ; while the main plan of Strasbourg (Argentoratum) is essentially the same today as it was then. The epitaph of a Roman sausage-seller 'Hominis probissimi negotiatoris artis macellariae' also perhaps indicates that national habits have altered little.

The book is illustrated by 41 excellent plates and numerous diagrams and illustrations ; the only criticism against it is that there is no adequate map, which makes the chapter on forts and routes hard to follow.

ELEANOR DOBSON.

# Antiquity

## A Quarterly Review of Archaeology

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VOL. XI No. 42

JUNE 1937

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### Varia

THAT Egypt still holds rich prizes both for the archaeologist and the field-investigator—if we may coin a phrase—is shown by recent discoveries there. Not only have important intact finds of associated objects been made but the even more astonishing discovery that ‘some elders of a certain native village possess a genuine, though limited, family tradition of the Coptic language. There, the last stage of ancient Egyptian, hitherto supposed to have died out completely by the 16th century of our era, still has a little use as a “secret” language’. The discovery was made by Werner Vycichl, who will publish an account of it in the *Mitt. d. deutschen Instituts für Ägyptische Altertumskunde in Kairo*. (*Amer. Journ. of Archaeology*, 1936, XL, 551, 554).

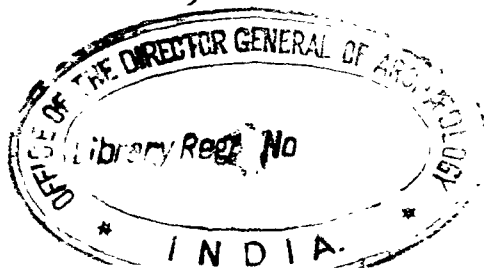


‘The Eleusinian hill, on the east slope of which the famous sanctuary of Demeter was located, can very properly be compared to those on which the famous citadels of Tiryns and Mycenae were constructed’. On it was found, in the season 1933-4, an amphora whose upper limit of date is put at about 1200 B.C. It bears an inscription in primitive alphabetic script which has been transcribed as

pa-i|da|ku-ka-vo-ne-da

and translated ‘Oh, maiden, this potion here (I offer, dedicate or accept)’. The maiden is Persephone, the daughter of Demeter, both of whom, together with the potion *κυκέων* were closely associated with the Eleusinian mysteries. (*Amer. Journ. of Archaeology*, 1936, XL 426-31).

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In the same Journal (p. 485), is an account, with ground-plan and illustrations, of the oriental basilica of S. Giovanni à Porta Latina in Rome. Parts of the walls of A.D. 500 are still to be seen.



In pulling down an old house at Cambridge, the bones of a stork were found. It seems that the stork made its nest on the chimney and it, or one of the young storks, had fallen down. This proves that storks must have been endemic in England up to quite a recent date. There is no doubt about the identification of the bones ; but it is to be hoped that a full account of the circumstances of this most interesting discovery will be published in due course.



The Trustees of the British Museum have acquired with the aid of a gift of £500 from the National Art-Collections Fund, six very remarkable pieces of Babylonian sculpture, all unlike any specimens so far in the collection. Their exact provenance is not known. The most striking and important is a steatite bowl, of the Agade period (about 2500 B.C.) which has carved round the vertical band of its outer surface a finely designed continuous frieze in low relief of human and animal scenes and other decoration. A grey granite vase, of some 500 years earlier, and attributable to Erech, also has a low exterior relief, this showing two spirited groups of a lion attacking a bull. A bronze figure of a naked woman holding a bottle is unique so far as discoveries have yet gone for its period (c. 2300–2000 B.C.), the naked female figure never occurring except on clay plaques of poor artistic quality.

Mr M. E. L. Mallowan has presented to the Trustees the share allotted to him as excavator of his finds at Tell Chagar Bazar and in the Khabur Valley in North Syria, consisting of tablets, seals, figurines, pottery, and other small antiquities, collectively valuable as providing (in the case of the tablets) secure dating points and throwing light on little known periods of the civilizations forming the link between the Mesopotamian cities and the Mediterranean.



A seal-impression with a ' minute but excellently executed figure of a stag ' figured on it, has been found at Tepe Gawra by the Joint Assyrian Expedition of the American School of Oriental Research. ' It is now absolutely certain that stamp seals were . . . in use at an early phase of the Tell Halâf period '. (*BASOR*, February 1937, p. 5).

## VARIA

‘ In the corner of a room [in Gawra XII], just under the floor, was found a pot filled with beads of carnelian, lapis lazuli, turquoise, and containing in addition a large stamp seal of marble and six gold beads, half of these being of the fluted type. The gold beads are interesting not on account of their number or workmanship, but chiefly because their occurrence in Gawra XII gives us the earliest relative date established for this metal so far ’. (*ibid.* pp. 5, 6).



The Schweich Lectures for 1937 were delivered by Claude Schaeffer, Director of the Ras Shamra excavations, during January. The three lectures dealt in turn with the history of Ras Shamra, whose ancient name was Ugarit ; with the library and cuneiform texts, and with the religious texts. The lectures were illustrated by lantern-slides and were very well attended.



A correspondent has sent us a cutting from the *Western Morning News* (4 Feb.), showing a pair of ox-horns attached to the chimney of a house in Horn Lane, Cullompton, Devon. They are said to have belonged to an ox which ploughed up that part of Kentismoor which was enclosed in 1808. In 1928 they were blown down, but were replaced in 1930 (for foreign instances see *ANTIQUITY*, 1936, x, 97-8, 223, 475).



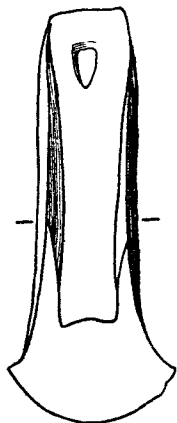
MR IORWERTH PEATE writes on ‘ Presely ’ :—

‘ As the person responsible for introducing this form to modern archaeology (“ A Note on the name Presely ” in *Arch. Camb.* 1930, pp. 407-9), perhaps I may be permitted to state briefly my reasons for doing so. Since *Prescelly* represents only a poor attempt at bringing the spelling to conform with an uneducated pronunciation of the place-name, it is inadmissible though countenanced by the Ordnance Survey. Dr Ifor Williams favours Preselau as the map and literary form but points out that the later development of this medieval form is towards *Presele* or *Presely*. Now in the same county, the place-name *Pontsely* is also found. This fact leads me to believe that the derivation is *prys-seleu* or *sely* (as suggested by Dr Williams in 1930) and that it is useless to hunt for the imaginary *presel*. Consequently since *Presely* (1) represents the legitimate modern development of the early form *Presseleu*, (2) conforms with the local pronunciation, (3) is analogous



## ANTIQUITY

with a related place-name from the same area, and (4) is more recognizable to non-Welsh readers than *Preselau* as the accepted form to replace the hybrid *Prescelly*, I hope that—with Preselite—it will be universally adopted'.



  
 BRONZE FLANGED  
 AXE  
 from Östergötland  
 Sweden (½)

DR J. G. D. CLARK writes :—

In the note (ANTIQUITY, March 1937, pp. 95 ff) on a flanged bronze axe, said to have come from Greece, Professor V. Gordon Childe commented on the fact that it was perforated near the butt by a circular hole. This hole, he suggested, might ultimately have derived from the 'notch' commonly found in the butts of all types of Italian bronze axes from the early flanged form to the late winged palstave; the transition could have been effected by the closing of the notch across the top of the axe.

Whether or not this explanation is correct it seems worth recalling the existence of a parallel to the allegedly Greek axe in the hope that the feature may be recognized more widely. The flanged axe here illustrated was found in a fen at Målbäck, Grebo parish, in the Swedish province of Östergötland\*; it differs from the 'Greek' specimen in the shape of the perforation, but seems to afford a close parallel in its general features.



As we go to press we hear from Mr A. H. A. HOGG that a section has been cut across the causewayed ditch of the camp on West Wickham Common (see *post*, p. 223), 85 feet north of the level causeway near the supposed entrance. No evidence of date was found. The original ditch at that point had a very blunt V section, 8 feet deep, and was about 30 feet wide at the top.



Our notes on the Prehistoric Society in the March number have aroused interest. The address of the Secretary is 78 Chesterton Road, Cambridge.

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\* O. Montelius, *Minnen från vår forntid*, fig. 809; A. Nordén, *Östergötlands Bronsålder*, Linköping, 1925, p. 14, and pl. I, fig. 11.

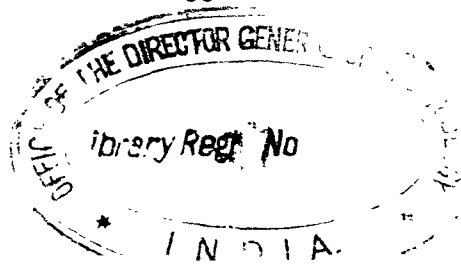
# Querns

by E. CECIL CURWEN

WHEN excavating in the hill-fort of Cissbury a few years ago the writer found nothing by which to date a certain group of pits except a piece of a revolving handmill (FIG. 23). Even this could not supply the necessary chronological evidence, because the developmental history of the quern or hand-mill had not yet been worked out in sufficient detail to enable one to say that a certain form is characteristic of a certain period. Being thus impressed with the need for such a study the writer endeavoured to collect data, but was met at the outset with the difficulty that of all the hand-mills preserved in our Museums extremely few have been dated at all closely by associated finds of pottery—at least so far as records go—while it seems to be exceptional even for modern excavators to note such associations when querns are found. After all, it is, as Pitt Rivers said, the common objects that are often more important than the rare ones, just because they are common, and it is surely one of the prime objects of excavation to obtain data for the study of the evolution, not only of pottery, but of all common objects.

As the case stands, then, very little can yet be said with any assurance on this subject, and the purpose of the present paper is to formulate a tentative scheme as a basis of study, in the hope of stimulating others to observe and record the necessary data upon which alone a more reliable and detailed classification can be based. For the present, therefore, we shall not attempt an exhaustive review of hand-mills, but confine ourselves to a consideration of what appear to be the leading types in evolutionary order.

By far the best study that has appeared on this subject is contained in the first volume of Bennett and Elton's *History of Corn-Milling* (1898), to which we are indebted for much of the available material; this book is a mine of information, but needs bringing up to date. We are, happily, emerging from that state of blissful ignorance of the subject which made possible such an anachronism as Décamps' well-known picture of 'Samson grinding in the Prison-house', wherein



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Samson is seen turning a huge mill-stone by means of a long lever like a capstan-bar, after the fashion of the Roman slaves a thousand years later. As well depict King Alfred burning the cakes at Athelney on a gas-cooker.

So deeply rooted in our minds has the idea become that a mill must revolve or spin that the term has of late been applied to quite unrelated machinery used for spinning cotton. The word, however, comes from a root meaning to pound or crush (compare 'muller'), and so far is it from having any rotatory significance that for thousands of years the only known mills, such as the *μύλη* of Homer, were simply contrivances for rubbing grain between two stones of convenient shape. On the other hand it may be that the word 'quern', which has many cognate forms in the Teutonic languages, properly signifies only a revolving hand-mill; but its use has been so freely extended to cover other types that there seems little reason now to restrict it to the rotary quern. Thus may some compensation be made for the extended application of the word 'mill'.

Hand-mills, or querns, then, may be broadly divided into two main classes, viz. those in which the upper stone revolves on the lower, and those in which the movement is to-and-fro or irregular. The latter class is the earlier and will be discussed first.

### I. NON-ROTATING HAND-MILLS

(1) MORTARS. The use of a stone to pound food-stuffs such as roots or acorns in a natural or artificial rock-basin is said to go back to palaeolithic times. Whether the basin was in a fixed or movable rock is an unimportant detail, but the whole contrivance was in effect a primitive pestle and mortar. In such a basin large roots or small grains could equally well be pounded, and mortars continued to be used for pounding corn in Rome right down to the first century A.D., some hundreds of years after more efficient mills had been introduced. In fact, the Latin *pistor*, a baker, meant literally one who pounds in a mortar, for bakers normally ground their own corn, and the name continued even when the mortar had given place to the donkey-mill.

(2) GRAIN-RUBBERS. In most parts of Europe the introduction of wheat with the Neolithic culture led to the differentiation of a special kind of mortar suited to the grinding, rather than pounding, of small grains. This was effected by making the stone basin wide and shallow, like a saucer, while the 'pestle' became squat and bun-shaped, so that it could be held in one hand and swept round and round the lower stone,

## QUERNS

or to and fro in any direction. Such a 'grain-rubber' is the characteristic 'mill' of the British Neolithic A phase and is plentifully found in our causewayed camps, such as Windmill Hill (Avebury, Wilts) and Whitehawk (Brighton) (PLATE II, 1). The existence of such an implement is usually taken as evidence that its owner possessed corn, and this seems to hold good with regard to Britain, but it must be remembered that in some countries a non-agricultural people might have developed a similar 'mill' for grinding the seeds of wild plants.<sup>1</sup> Grain-rubbers of this kind are still used by some African peoples for grinding their corn.<sup>2</sup>

(3) SADDLE-QUERNS. Although in the case of the grain-rubber the small bun-shaped upper stone could be carried by the hand round and round the saucer-shaped lower stone, or in any direction, an examination of the signs of wear on such stones shows that one direction was often favoured more than another, resulting in a more or less to-and-fro motion. One advantage of this was that a larger upper stone could be used, because the to-and-fro movement permitted both hands to be used on it. This led to the development of the true 'saddle-quern', in which a bolster-shaped upper stone lies athwart an elongated lower stone (PLATE II, 4). The latter has a grinding surface which is more or less concave longitudinally, while from side to side it may be flat or else slightly concave or even convex. In the last case the stone is saddle-shaped, whence the type is named. The upper stone is typically bolster-shaped, and its grinding surface convex from side to side. Variations naturally occur, and the grain-rubber develops into the saddle-quern by gradual stages.

Although the grain-rubber is typical of the British Neolithic A phase, the true saddle-quern had already appeared on the Continent and in the Near East. In Egypt models have been found depicting the method of its use (FIG. 1) : a slave-girl kneels on the ground with the lower stone before her, placed so that its grinding surface slopes somewhat away from her ; she grasps the upper stone in both hands and alternately pushes and pulls it backwards and forwards the length of the lower stone, bending her body at knees and hips in so doing. Releasing one hand from time to time she feeds the grain on to the nearer end of the lower stone, whence it percolates down the slope between the two stones as it is ground, and falls off the far end in the form of meal.

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<sup>1</sup> My attention has been drawn to this point by Professor Gudmund Hatt of Copenhagen.

<sup>2</sup> e.g., on the Gold Coast ; see photo in *Peoples of All Nations* (edited by J. A. Hammerton, Amalgamated Press, Ltd.), p. 596.

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The method is still employed by some African peoples in identical fashion, and one of the Late Bronze Age saddle-querns from New Barn Down in Sussex is so shaped that the grinding-surface slopes at just such an angle as the Egyptian representations show, viz. about 20 degrees<sup>3</sup> (PLATE II, 2).

It is important to realize that whenever one reads of a mill in the Old Testament or in Homer one must picture a saddle-quern such as we have just described, for no other type was then known. This will explain, for instance, the appropriateness of the preposition used in the phrase 'the maidservant that is *behind* the mill' (Exodus xi, 5), for

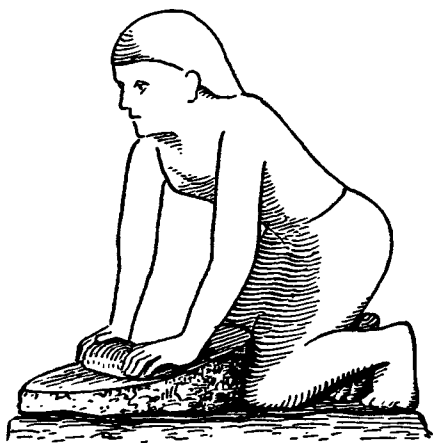


FIG. 1. EGYPTIAN STATUETTE ILLUSTRATING THE  
USE OF THE SADDLE-QUERN. (5th Dynasty)

*After Bennett and Elton*

while one may sit beside a rotary quern, one can best be described as kneeling behind a saddle-quern. Similarly the 'upper millstone' which might not be taken to pledge (Deuteronomy xxiv, 6) is literally the 'rider' in Hebrew, for it rides on the lower stone as on a saddle. It is also interesting to note that the manna which the Israelites used as a substitute for corn, was not only ground in mills but beaten in mortars (Numbers xi, 8), and the survival of the mortar for pounding corn is attested by a well-known passage in the book of Proverbs (Prov. xxvii, 22). Finally, when Samson was captured by the Philistines and put to grind in the prison-house (Judges xvi, 21) he was made to do the work of a slave-girl, labouring at the saddle-quern.

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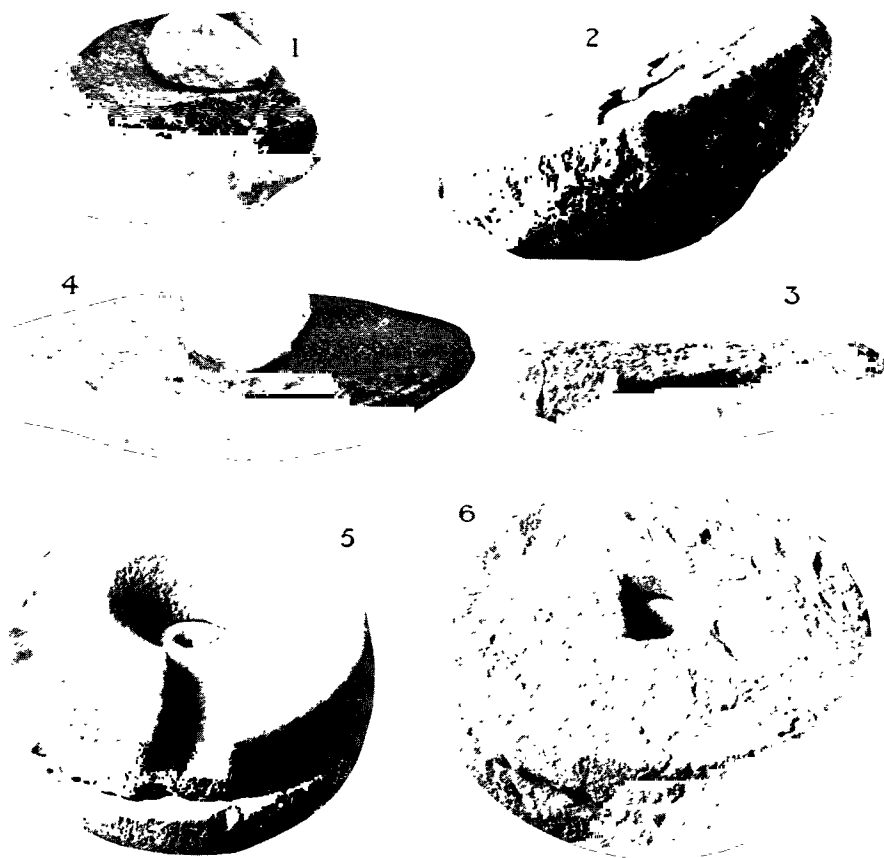
<sup>3</sup> *Sussex Arch. Coll.*, 1934, LXXV, 167.

PLATE I



POUNDING IN A MORTAR ISLE OF LOULA, SHETLAND  
*ph* H. B. Curwen, 1902

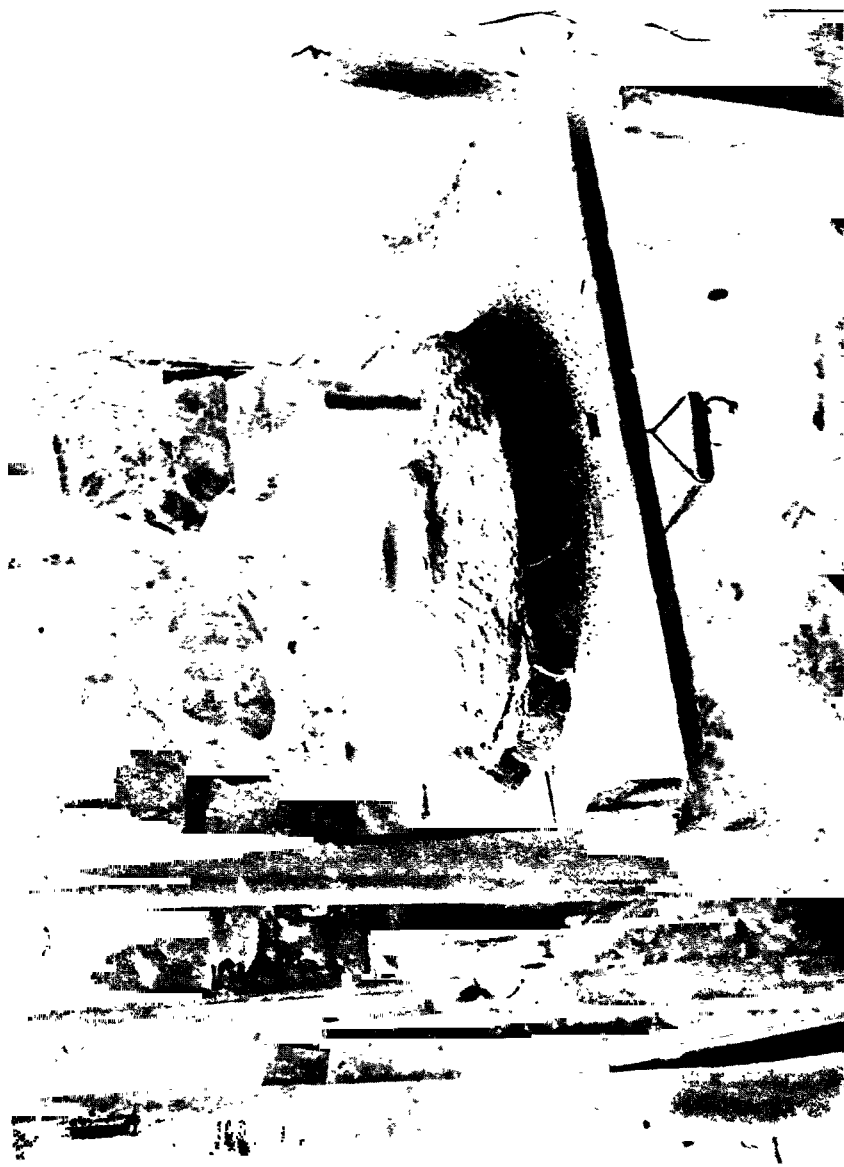
## PLATE II



### SOME QUERN TYPES

- 1 Part of a Neolithic Grain-Rubber, Whitehawk Camp, Brighton (Brighton M.)
- 2 Late Bronze Age Saddle-Quern (lower stone); New Barn Down, Sussex (Worthing M.)  
Note angle of inclination, and compare with fig. 1 (p. 130)
- 3 Late Bronze Age Saddle-Quern (lower stone); New Barn Down, Sussex (Worthing M.)  
Note small type, also common in Iron Age A
- 4 Well-developed Saddle-Quern; note bolster-shaped upper stone, seen foreshortened (p. 135)
- 5 Early Romano-British Rotary Quern, Iwer, Bucks (*cf.* fig. 17); typologically should be 1st cent. A.D.  
Note radial groove for handle
- 6 Early Romano-British Rotary Quern, Hassocks, Sussex (*cf.* fig. 18); probably 2nd cent. A.D.  
Note absence of hole or groove for handle

PLATE III



MODERN QUERN MOUNTED FOR USE, ISLE OF FOULA, SHETLAND

*ph* H. B. Curwen, 1992

Note beneath the table the end of the lever, or bridge-tree, which carries the spindle supporting the upper stone. By raising or lowering this plank (by twisting or untwisting the cord) line adjustment can be made for grinding coarse or fine (see fig. 39 and p. 144)



PLATE IV



QUERN-MAKER AT WORK ISLE OF FOUJA, SHETLAND  
*pl. II B. Curwen, 1902*

## QUERNS

The true saddle-quern may have been introduced by the megalith builders, for a characteristically elongated upper stone was found built into a megalithic burial chamber on Samson, Scilly Isles.<sup>4</sup> The evidence of statuettes shows that this form of mill goes back at least as far as the 3rd dynasty in Egypt.<sup>5</sup> At the present day it is still used by certain African races and in Mexico.<sup>6</sup> In Britain its use practically ceased with the Early Iron Age ; Romano-British specimens are very rare, two from a settlement at Westbury (A.D. 100-400) being in the Devizes Museum. A specimen was also found in a Saxon hut at Bourton on the Water.<sup>7</sup>

### II. ROTATING HAND-MILLS

The origin of the rotating mill is still wrapped in obscurity. Archaeological evidence as to its origin is so far lacking, though it is hoped that what is said here may stimulate research in Mediterranean lands, where the clue is undoubtedly to be found. A little light may be obtained from literary references to donkeys grinding corn, for in the absence of more explicit details it is difficult to see how a donkey could work any other than a large revolving mill turned by a lever like that of a capstan. By metonymy the upper mill-stone came to be called the 'donkey' in Greek, and the earliest use of this term goes back to Xenophon (400 B.C.), Aristotle, and Alexis (350 B.C.<sup>8</sup>) ; and it is noticeable that such references occur much earlier in Greek than in Latin literature, and also that the donkey-mill is referred to long before the rotary hand-mill. So far as the literary evidence goes, one is led to suspect that the principle of the revolving mill may have been invented in Greece in the form of a donkey-mill—certainly before 400 B.C. ; that this later spread to Rome ; and that the rotary quern may have been derived from the donkey-mill by application of the rotary principle to the domestic mill in country districts.

The revolving mill is so great an advance on any previous appliance that it cannot possibly have come into being by the normal process of development. With the possible exception of the potter's wheel it is the earliest piece of machinery to replace an oscillating movement by a

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<sup>4</sup> *Antiq. Journ.*, 1933, XIII, 27, 29.

<sup>5</sup> Bennett and Elton, *History of Corn-milling* (1898), I, 38-9.

<sup>6</sup> *Ibid.*, p. 79.      <sup>7</sup> *Ant. Journ.*, XII, 290.

<sup>8</sup> Xenophon, *Anabasis*, I, 5, 5 ; Aristotle, *Probl.* 35, 3 ; Alexis, *Amph.* 1, *Pyraun.* 4.

## ANTIQUITY

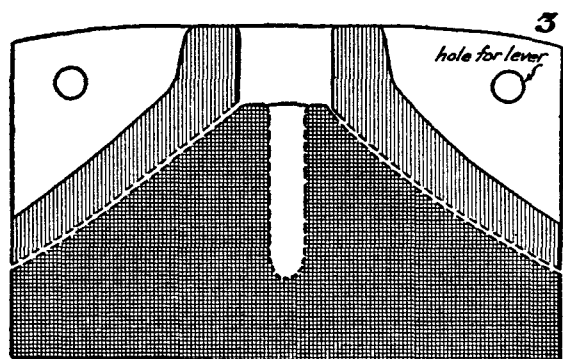
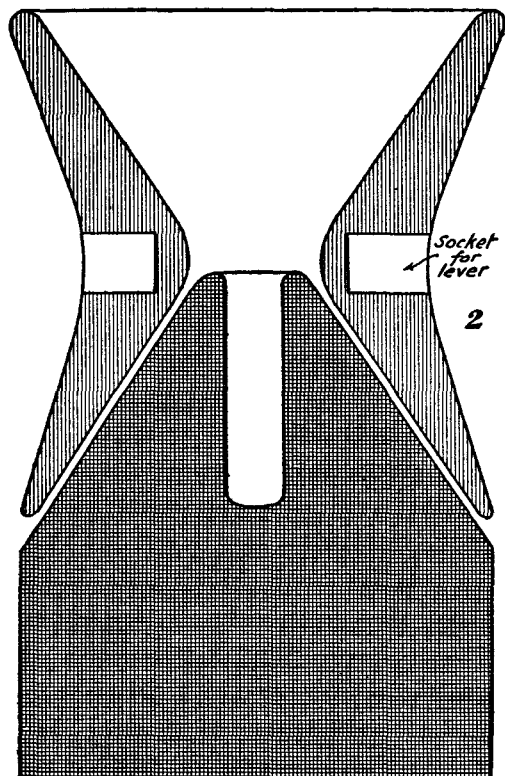
continuous rotary one. This is the principle of most modern machinery, whereby, for instance, we have the circular saw instead of the to-and-fro movement of the hand-saw, and the propeller instead of oars. Such an advance could only have been the product of a brilliant engineer or mathematician—some forgotten forerunner of Archimedes, who failed to achieve the immortality of the classics.

We have no knowledge of the form of the earliest Greek donkey-mills, but we have Roman examples of the 1st century A.D., such as those at Pompeii (FIG. 2). Such a mill consisted of a lower stone (*meta*) in the form of a cone, the apex of which carried the iron spindle which supported the upper stone (*catillus*). The grinding surface thus sloped steeply down from the apex at an angle which might be as much as 35 or 40 degrees. The upper stone consisted of a hollow cone—sometimes two hollow cones placed apex to apex; one fitted over the conical lower stone, while the other served as a hopper into which the grain was thrown. An iron bridge, called in English the *rynd*, was placed across the narrowest part of the opening between the two hollow cones, and rested on the top of the spindle. Thus the grinding surfaces of the two stones were not necessarily in actual contact with one another, and the grain thrown into the hopper percolated down the slope between the two stones, to emerge in the form of meal at the circumference. The upper stone was turned by means of two large horizontal levers set in sockets on its sides; to these levers donkeys or other animals might be harnessed, or slaves were chained, and the unfortunate creatures were made to walk round and round in incessant circles.

The downward slope of the grinding surfaces is a clear relic of the tilt of the saddle-quern to which allusion has been made, as is also the way in which the meal escapes from the mill by gravity when it is ground fine enough to do so. Of the saddle-quern itself in classical Greece and Rome the writer knows no archaeological evidence,<sup>9</sup> nor does there appear to be any literary evidence of it. The Romans had, it is true, a mill which they called *mola trusatilis*, or pushing-mill, and this was considered by Bennett and Elton to refer to the saddle-quern because it is not an inapt description of it, and the term seemed to them to be in contrast to the *mola versatilis*, or revolving mill. It is, however, equally likely that it may have referred to the slaves pushing the long levers of the rotary mill as they walked round and round it. Aulus

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<sup>9</sup> The saddle-quern was, however, the mill of Homer, as has been pointed out.



INCHES  
0 2 4 6 8 10 12 14 16 18 20 22 24 26

#### DONKEY AND SLAVE MILLS

Fig. 2. General type, based on specimens at Pompeii

Fig. 3. From Ham, near Poole, Dorset, made of lava (British Museum)

*Lower stones are cross-hatched*

## ANTIQUITY

Gellius, for instance (A.D. 150) says that Plautus, who lived 350 years before, laboured 'at turning the mills which are called pushing-mills',<sup>10</sup> and Cato (150 B.C.) includes in the equipment needed for an oliveyard of 240 acres '1 donkey-mill, 1 pushing-mill, 1 Spanish mill', while for a vineyard of 100 acres he recommends '3 donkey-mills, 1 pushing-mill'.<sup>11</sup> It seems unlikely that so insignificant a contrivance as a single saddle-quern would be required in addition to three efficient donkey-mills. On the other hand the mortar remained popular in Rome at least as late as the first century A.D., but by the 4th century seems to have been no longer used for corn.

The first unmistakable references to rotary hand-mills seem to be those of Virgil (70-19 B.C.), particularly the fine description of the peasant grinding his corn on one, and mashing his herbs in a *mortarium*, in preparation of something suspiciously like a haggis.<sup>12</sup> The impression one gains from looking through these classical references is that the donkey and slave mills were a product of the increasing sophistication and complexity of town-life, and that the rotary hand-mill was an adaption of the new machine for the benefit of the peasants who lived far from the towns, and still had to grind their own corn at home.

The story of the rotary quern on the Continent still remains to be worked out. In Britain it makes its first appearance between 100 and 50 B.C., and it seems likely that it was first introduced by the Iron Age B folk, for while it has not been found on sites that show only Iron Age A1 and A2 pottery, it is present in Iron Age B and AB sites, such as the Glastonbury Lake-village and Maiden Castle, and is sometimes found in sites that antedate Iron Age C, as at the Trundle (FIGS. 4-14).

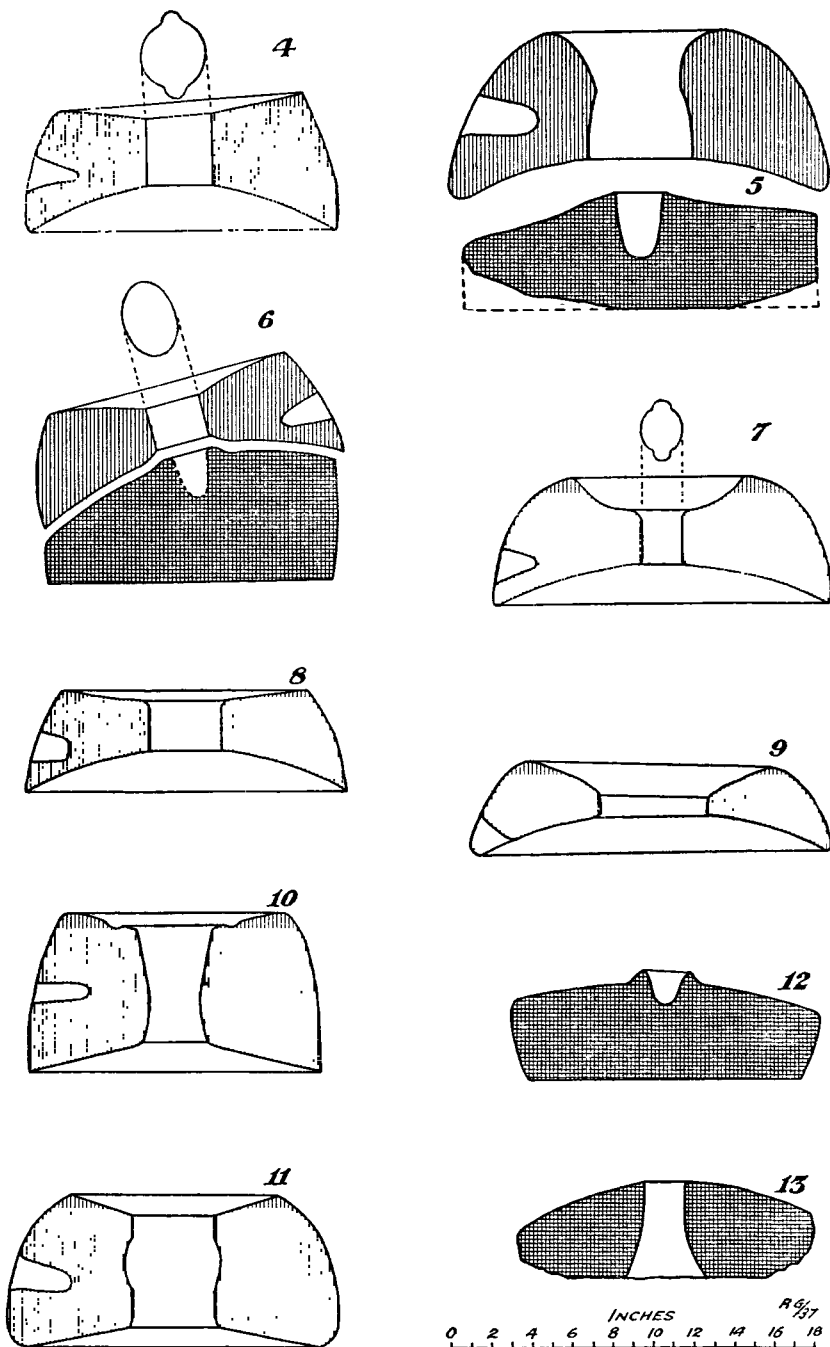
(1) PRE-ROMAN TYPE (FIGS. 4-14). The earliest form of the rotary quern in Britain betrays its close relationship with the donkey-mill. The stones are of small diameter (generally about 12 to 14 inches), and each is excessively thick (from 6 to 8 inches). The lower stone is usually conical, the slope of the grinding surface being commonly about 20 degrees, and there is a central socket for the wooden spindle which supported the upper stone. In many cases the grinding surface, instead of being conical, is shaped like a segment of a sphere. The upper stone is often nearly hemispherical or bee-hive-shaped externally—hence the term 'bee-hive quern'—but it may have a hollow on top to serve as a hopper for the grain, or the top may be practically flat.

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<sup>10</sup> Aulus Gellius, III, 3.

<sup>11</sup> Cato, *R.R.*, x, 4; xi, 4.

<sup>12</sup> Virgil, *Moretum*, 19-30, 39.



#### PRE-ROMAN ROTARY QUERNS FROM WESSEX

Figs. 4, 5. Maiden Castle, Dorchester (Iron Age B)

Fig. 6. Provenance uncertain (Dorchester M.)

Fig. 7. Kingbarrow Quarry, Portland (Dorchester M.)

Fig. 8. Fifield Bavant (Devizes M.), associated with pottery decorated with 'swags', and having foot-rings, therefore probably after 50 B.C.

Fig. 9. Twyford Down, Winchester (before 50 B.C.). After James Stuart

Fig. 10. Ham Hill, Somerset (Taunton M.)

Figs. 11-13. Glastonbury Lake Village (Glastonbury M.) Note completely perforated lower stone (fig. 13), dating before A.D. 70

*Lower stones are cross-hatched*

## ANTIQUITY

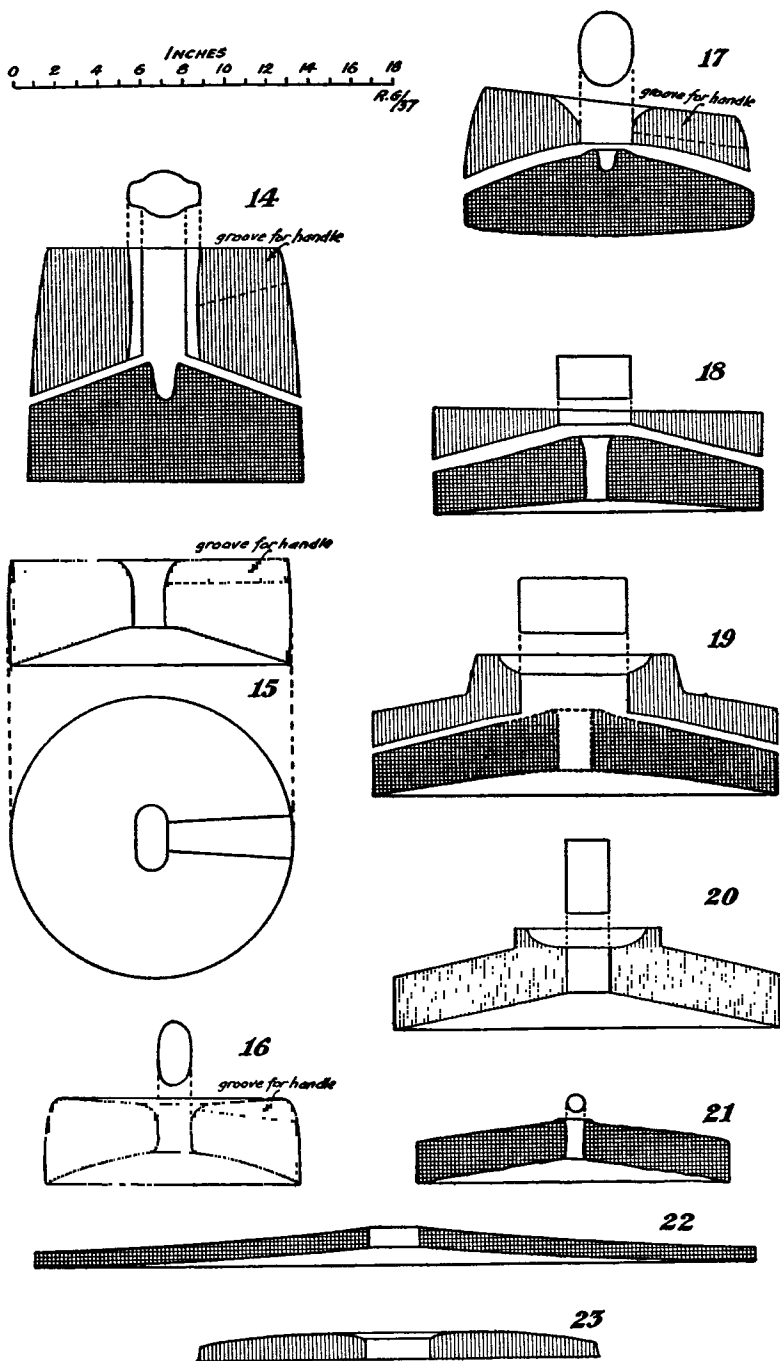
The grinding surface is a hollow cone or segment of a hollow sphere, to correspond with that of the lower stone. The upper stone was turned by means of a horizontal handle which projected radially from a socket in the side or from a groove on the top, if the latter is flat. The perforation through the upper stone may be oval or circular in section, but in the latter case there may be two slots, one on either side of it, extending right through the stone and virtually converting the circular perforation into an oval (FIGS. 4, 7, 14). The object here was to allow space for the grain to pass the rynd, which in hand-mills was generally of wood, and rested on the top of the wooden spindle.

The relationship between these early rotary querns and the donkey-mills seems to be shown by—(1) the convexity of the lower stone, whether conical or a segment of a sphere ; (2) the possession, in many cases, of a hollow basin on top to serve as a hopper ; and (3) the radial position of the handle which recalls the levers of the donkey-mill but is less convenient in a hand-mill than the upstanding handle of later querns.

These early querns seem to fall into two classes : (1) the Wessex type (FIGS. 4-13), in which there is generally some kind of hopper : the handle is inserted in the side of the upper-stone, and the grinding-surfaces form a segment of a sphere (less frequently a cone) ; and (2) the Sussex type (FIG. 14), in which the top is flat ; the handle, though still projecting radially, is placed in a groove on the flat top, and the grinding-surfaces are conical. Whether or not these distinctions are significant it is difficult to say.

A third class, apparently derived from the Wessex type, possesses a similar thick and heavy upper stone, cheese-shaped, bee-hive or conical, but is distinguished by the fact that the grinding surfaces are practically flat (slope not exceeding 3 degrees). Both this and the Wessex type were found at Ham Hill, Somerset (FIGS. 10, 24), but the largest number of them occurred at the Iron Age AB hill-fort of Hunsbury, near Northampton. This class, which we may call the Hunsbury type, is important because it appears to have been a product of the northward spread of the Iron Age B culture, and to have been ancestral to what we have ventured to call the Roman legionary type of quern (see p. 148).

(2) ROMANO-BRITISH DOMESTIC TYPES (FIGS. 15-22). During the Roman period the rotary quern in southern Britain underwent development from the clumsy Iron Age type to neater and lighter forms. The general tendency was towards an increase of diameter with diminution



# THE DEVELOPMENT OF THE ROMANO-BRITISH DOMESTIC QUERN

- Fig. 14. The Trundle, Sussex (before 50 B.C.) (Lewes M.)  
 Figs. 15, 16. Hardham *mansio*, Sussex (A.D. 50-150) (Lewes M.)  
 Fig. 17. Iver, near Uxbridge (Lewes M.) (*cf.* plate II, 7)  
 Fig. 18. Hassocks, Sussex (mainly 2nd cent. A.D.) (Lewes M.) (*cf.* plate II, 8)  
 Fig. 19. Thundersbarrow Hill (village-site, 4th cent. hut) (Hove M.)  
 Figs. 20, 21. Richborough.  
 Fig. 22. Pevensey; faintly grooved (4th cent. A.D.) (Lewes M.)  
 Fig. 23. Cissbury: period of re-fortification (Worthing M.)

*Lower stones are cross-hatched*



## ANTIQUITY

of thickness, and consequently a reduction in the slope of the grinding-surfaces. It should be possible to date the stages in this development, but at present certain points remain obscure, and all one can do is to suggest an outline which it is hoped may stimulate others to fill in the details, or else to emend.<sup>13</sup>

We suggest, therefore, that it may be possible to recognize two general types—an earlier and a later Romano-British—which are more or less directly descended from the 'bee-hive' quern of Sussex.

(a) *Flat-topped : early Romano-British* (FIGS. 15-18 and PLATE II, 5, 6). In the earlier type the upper stone may be about 15 in. wide and  $2\frac{1}{2}$  in. thick, with a flat, horizontal top, a perforation that is at first oval and later rectangular, and a grinding surface that slopes at not more than 15 degrees. The lower stone is of similar thickness, and generally has a central socket for the spindle, sometimes surrounded by a slight lip (FIG. 17). At some period during this stage the central socket was replaced by a complete perforation (FIG. 18), an improvement to which we shall return presently. The under-surface of the lower stone was left rough, but is more or less flat.

(b) *Projecting hopper type : later Romano-British* (FIGS. 19-21). The later Romano-British type of quern shows rather more elegance in its construction. The slope of the grinding-surfaces is reduced to about 10 degrees, and the upper surface of the top-stone also slopes downwards and outwards at a similar angle. The summit of the quern is furnished with a hopper which projects above it ; the outer face of this is nearly vertical, while the inner face is basin-shaped, and slopes down to the perforation which again is rectangular. The lower stone has a round central perforation instead of a socket, and there is a tendency for the under-surface to be slightly concave, so that it may be roughly parallel to the grinding surface. This type of quern is commonly of larger diameter, and may be 20 in. or more ; a fragment from Selsey in the possession of Mr W. L. White must have belonged to a quern 3 ft. 7 in. across and only 2 in. thick.

The complete perforation of the lower stone is evidence of the adoption of a device for adjusting the upper stone to grind fine or coarse at will (FIG. 39 and PLATE III). This device, which could be seen in actual use in the querns of the Hebrides in recent times, allowed the spindle which supported the upper stone to pass right through the

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<sup>13</sup> In attempting to date querns typologically it should be remembered that the life of a single specimen might be 70 or 80 years—at least in Scotland ; Bennett and Elton, *op. cit.*, 159, 170.

## QUERNS

lower stone, to rest on a movable lever below it.<sup>14</sup> From the chronological aspect we need to know when this device (1) first appeared, (2) became general, and (3) became universal. The earliest specimen of a completely perforated lower stone that the writer has noted was found at the Glastonbury lake village,<sup>15</sup> where it must date before A.D. 70 (FIG. 13). In confirmation of this early date the stone is  $4\frac{1}{2}$  in. thick and 15 in. in diameter, while the grinding-surface has a slope of about 20 degrees. It may be to this device that Columella refers (about A.D. 42) when he says that the upper stone can be easily adjusted so that even olives can be crushed by them.<sup>16</sup> As to when its adoption became general and finally universal, no opinion can yet be offered. Probably it will be found that the older method was discontinued during the second century.

The practice of grooving the grinding surfaces of querns had a two-fold object, viz., to make the grinding more effective, and to facilitate the ejection of the meal at the circumference of the stones. Both upper and lower stones were grooved in the same way, the grooves being arranged in groups of parallel lines placed more or less tangentially to the central perforation (FIG. 42). Thus when the upper stone was revolving the grooves on the opposing faces would be continually cutting across one another and catching the grains of corn between them, as between the blades of scissors. The same movement would tend to push the meal down the grooves towards the periphery of the quern, but this latter function is of secondary importance, as the earliest grooved querns had such sloping surfaces that the meal must have had little difficulty in escaping. It is perhaps to this feature that Virgil's *lapis incusus* refers,<sup>17</sup> and if so it goes back at least to the first century B.C. in Italy. In Britain grooving was probably commoner in the towns and villas than in the villages, no doubt because a grooved quern cost more than the average peasant could afford. We suspect also that it may have been commoner in the second half of the Roman period than the first, though the earliest specimen that the writer has noted is a fragment of a quern of the early Romano-British form described above, found with late La Tène III pottery in Maidstone, and preserved in the Maidstone Museum. This piece is of lava, and is therefore imported; its grinding surface slopes at about 14 degrees.

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<sup>14</sup> Arthur Mitchell, *The Past in the Present* (1880), 35-7.

<sup>15</sup> Glastonbury Museum, Q 8 (W. 8).

<sup>16</sup> Columella, *R.R.*, XII, 50.

<sup>17</sup> *Georgics*, I, 275.

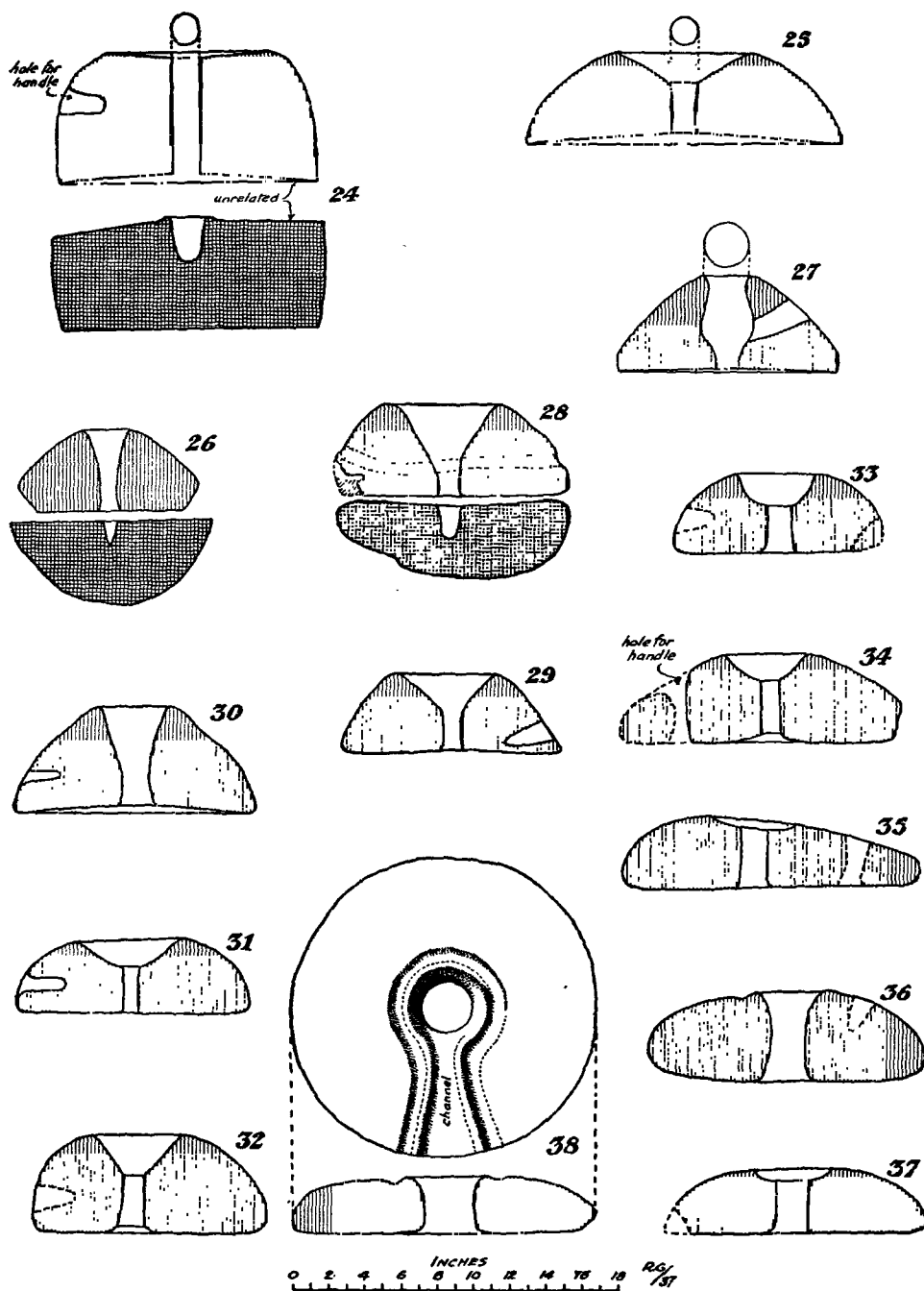
## ANTIQUITY

(3) FLAT TYPES. It may possibly be that the increased facility with which grooved querns ejected the meal made possible the reduction of the slope of the grinding-surfaces until they ultimately became practically flat. Flat querns, that is, those in which the slope of the grinding-surfaces does not exceed 2 or 3 degrees, are of more than one type.

(a) *Disc type : late or post-Roman* (FIGS. 22, 23). First, there are those which appear to be derived from the types which we have been describing, and which are probably late Roman in date. These consist essentially of two thin discs of stone, both with central perforations, while the upper sometimes has a kind of collar round the aperture, reminiscent of the hopper. In these the handle-hole, if present, is necessarily on the upper surface, and points to the use of a vertical wooden handle, thus contrasting with the pre-Roman querns. Part of a lower stone of a grooved quern of this type was found at Pevensey, where it must date to the 4th century. The grinding surface slopes at 3 degrees, and there is a central perforation ; the slight concavity of the under-surface proclaims its descent from the late Romano-British quern already described (FIG. 22). This type of flat quern has, with minor variations, a wide range of date, from the example found in one of the re-occupation pits at Cissbury (FIG. 23), to which allusion was made at the opening of this paper, to medieval and perhaps modern times. The precise date of the Cissbury quern is still a puzzle, but there seems nothing against a possible date in the Dark Ages, even if it is not late Roman, for typologically it should be later than our late Romano-British type. These flat querns may or may not be grooved, for as we believe that grooving may have made the flattening of the grinding-surfaces practicable, so we suggest that the un-grooved flat quern may have arisen as a cheaper and less efficient imitation. The poverty of the prospective owner has always been a powerful factor in influencing the development of the quern, as of other contrivances. On the other hand, the development of this type of flat quern may have been influenced by the second type, described below, which arose independently of grooving. The introduction of wind and water-mills during the Middle Ages, and the repressive laws against hand-mills,<sup>18</sup> combined to retard the development of the quern in England since the Norman Conquest. The medieval English quern is likely to have been profoundly influenced by types introduced by the Saxons (see under

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<sup>18</sup> Bennett and Elton, *op. cit.*, I, 210-21.



#### ROMAN LEGIONARY QUERNS (?) AND THEIR SCOTTISH DERIVATIVES

- Fig. 24. Ham Hill, Somerset; Iron Age B (Taunton M.)  
 Fig. 25. Richborough  
 Fig. 26. Provenance unknown (Maidstone M.)  
 Fig. 27. Hardham *mansio*, Sussex (A.D. 50-150) (Lewes M.)  
 Figs. 28, 29. Randylands Mile-Castle, Cumberland (2nd cent. A.D.). (Carlisle M.). Grinding surfaces grooved  
 Fig. 30. Newstead Fort, Roxburghshire (late 1st or mid-2nd cent.)  
 Figs. 31, 32. Castlecary Fort, Stirlingshire (late 1st or mid-2nd cent.)  
 Fig. 33. Barlockhart Loch Crannog, Kirkcudbrightshire  
 Figs. 34, 36, 37. Cinn Trolia Broch, Sutherland  
 Fig. 35. Broch of Burray, Orkney  
 Fig. 38. Lamaness Broch, Sanday, Orkney  
 (Figs. 29-37: Edinburgh M.)  
 Lower stones are cross-hatched

'Pot-Querns', below). Hand-mills were used in Cumberland as late as the early part of the nineteenth century.<sup>19</sup>

(b) *Flat 'Beehive' (Roman legionary type?) and its Scottish derivatives* (FIGS. 24-38). There is a second type of flat quern which appears to have been derived from the Hunsbury class of Iron Age B (see p. 142). This is the humped or 'bee-hive' type, of which the upper stone bears a close superficial resemblance to that of the 'bee-hive' querns of the Early Iron Age, except for the fact that the grinding-surface is almost or quite flat. This kind is sometimes made of pudding-stone; the lower stone has a round base and a central socket for the spindle, like the pre-Roman and early Roman specimens. One specimen of pudding-stone, with grinding-surface sloping at only 3 degrees, comes from the excavations at Richborough, but unfortunately has no detailed history of closely datable associations (FIG. 25). Others of similar profile come from the Roman forts at Newstead and Castlecary in Scotland (FIGS. 30-32), where Professor Childe tells the writer that they are probably Flavian or possibly Antonine in date (viz. late first or mid-second century A.D.), and from a mile-castle at Randylands on the Roman Wall (Carlisle Museum), where they were found in a second century stratum (FIGS. 28, 29). Yet another specimen comes from the crannog in Barlockhart Loch (FIG. 33).<sup>20</sup> These have lateral handle-sockets, like the pre-Roman querns, and an important feature of this type is the rarity of grooving. On the slight evidence available these querns should belong to the first and second centuries A.D. They certainly occur more commonly in military areas, and seem to be almost unknown in the peasant settlements of the south.

The querns from the Scottish *brochs*, dated from the first to the fifth century A.D.,<sup>21</sup> appear to be barbaric derivatives of this humped type of flat quern, and seem to undergo a progressive thinning, while the handle-socket travels up the curved profile of the upper stone to occupy a more or less vertical position on the top (FIGS. 34-38). Sometimes the handle-socket completely perforates the upper stone, the lower end opening on to the grinding-surface. The basin-like hopper is reduced to a vestigial depression, or vanishes altogether, its place being sometimes taken by a slightly raised collar round the opening (FIG. 38). But in every case the grinding-surfaces are practically flat,

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<sup>19</sup> *Ibid.*, 171.

<sup>20</sup> I am indebted to Professor Gordon Childe for this information.

<sup>21</sup> For an account of the *brochs* see ANTIQUITY, 1927, I, 290-8.

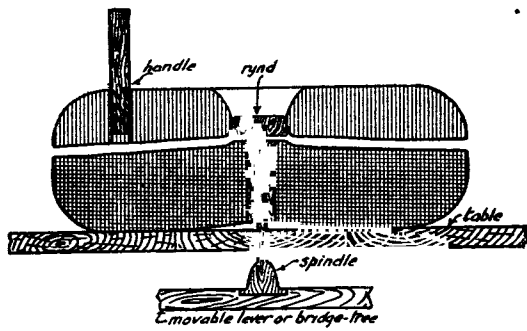
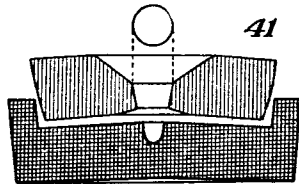
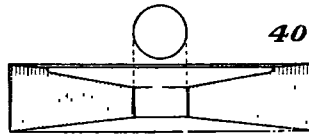


FIG. 39. MODERN SCOTTISH QUERN, N. UIST  
To show method of adjustment for grinding fine or coarse meal  
(Compare plate III)



#### QUERN-TYPES MADE OF LAVA

Fig. 40. Richborough; fine grooving on all surfaces

Fig. 41. Pot-quern, Winchester; said to be Saxon (Winchester M.)

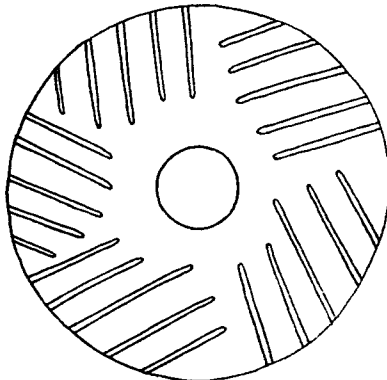


FIG. 42. DIAGRAM TO SHOW PATTERN OF GROOVING  
Often the grooving on querns is more closely set and tends to be more radially disposed

## ANTIQUITY

thus differing from the contemporary Romano-British querns of normal types from southern Britain, and grooving is absent.

It looks as if the modern Scottish flat querns (FIG. 39) have been developed from the beehive type by a process of thinning, for they seem to be directly descended from those of the brochs. They have the vertical handle, and are inclined to be asymmetrical, but they exhibit the perforation of the lower stone designed to facilitate the adjustment of the upper stone, as has already been described, and it is, in fact, by observing these modern querns in actual use that the purpose of the perforated lower stone has been understood.

(4) POT QUERNS. A pot-quern is one in which the upper stone revolves inside a hollow cylindrical lower stone. The grinding surfaces are more or less flat, and are generally grooved, but in addition the exterior cylindrical surface of the upper stone has been 'trued' and shows signs of wear resulting from friction against the sides of the pot-like lower stone. The latter has a socket for the spindle, and is not usually completely perforated. There are commonly more than one handle-socket on the top of the upper stone (FIG. 41).

The writer knows of no evidence that any specimen of a pot-quern is necessarily of Roman date. The type was very familiar in the Middle Ages, and a specimen from Winchester, made of lava, and said to have been found in a Saxon horizon, is in the Winchester Museum. Typologically this kind of quern does not fit into series with what we know of Romano-British querns, for while the flattish, grooved grinding surfaces should be late, the spindle-socket should be early, and innovations like the pot-form and the twin handles appear suddenly and without much reason. One would venture to suggest tentatively that it may be a form that was introduced by the Saxons, but this can only be verified or disproved by careful observation of datable examples in this country, and especially by study on the Continent. The frequent use of lava of German origin would be quite in keeping with this suggestion, and, in fact, most querns made of lava seem to be of forms that differ more or less from those that are normal in Britain, thus suggesting that they may be German types. Some of these were, of course, introduced during the Roman period (FIG. 40).<sup>22</sup>

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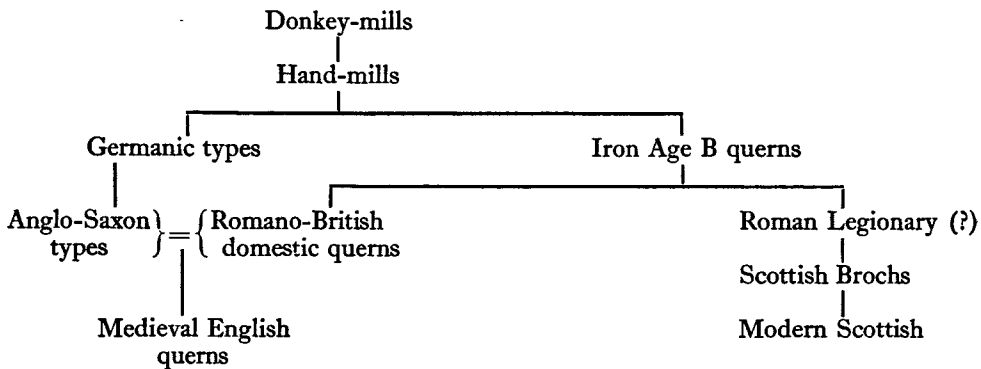
<sup>22</sup>Two pieces of Niedermendig lava were found by Mr Alexander Keiller with Neolithic B pottery in the excavations at the Avebury Avenue, Wilts. (ANTIQUITY, 1936, x, 422). Mr Stuart Piggott tells me that one of these has a smoothed face, suggesting that it formed part of a grain-rubber or saddle-quern. Another piece of similar material was found by Mrs Cunnington in an Early Bronze Age context at 'The Sanctuary', Overton Hill, Wilts. (*Wilts. Arch. Mag.*, XLV, 322).

# QUERNS

## CONCLUSIONS

The development of the quern presents an immense field for study, and represents a gap in our knowledge which is crying out to be filled. What has been said above is designed to stimulate research by suggesting a rough classification of some leading types in Britain only. These need checking, correcting and amplifying, and the whole of the Continental and Irish material needs studying, in order to place our own in its proper setting. With the exception of lava, questions regarding the varieties of stone used for querns have not been raised, as local materials do not appear to have influenced their development. Still less has any attempt been made to include every known variety of quern, as many local developments are likely to have taken place. In fact, it is probable that local styles have not been sufficiently taken into account in what has been said in this paper.

Our tentative scheme for the development of British rotary querns may be summarized in the form of a genealogical table :—



The writer wishes to acknowledge the kindness of all who have helped him, by giving access to querns in Museums, and especially by supplying information and scale drawings. Among many such benefactors he would specially mention Professor V. Gordon Childe of Edinburgh, Mr Robert Hogg of Carlisle Museum, and the writer's uncle, Mr H. B. Curwen, for the use of the photographs he took in the island of Foula in 1902.



# The Method of Prehistoric Archaeology

by A. M. TALLGREN

*Professor of Prehistoric Archaeology at the University of Helsinki, Finland*<sup>1</sup>

DURING the last fifty years prehistoric archaeology has developed with extraordinary rapidity into a firmly established branch of science. A system has been constructed, the frontiers of several cultural phenomena have been laid down, and the outlines of prehistoric chronology have been formed. Hypotheses and assertions have been made concerning the ethnographical groups of prehistoric times, and lengthy 'prehistoric' periods have literally been transformed into 'historic' ones. The inscription on the medal struck for Oscar Montelius—'Fifty years of research have mastered millennia of human culture'—may serve as a short motto summarizing the results of archaeology as a whole, not merely the achievements of one man.

The method which has led to this result is that of the empiric sciences, based on the theory of evolution, namely, that of typology. The starting-point of research has for the most part been morphology. When synthesis has been the objective, the student's instruments of research have consisted primarily of *forms* or *shapes* of objects, or ornaments and tombs and so forth, and their comparison.

Such in general has been the archaeologist's method of research; he has tried first of all to become acquainted with all the available material, such as objects and ancient monuments, within his field of action and on the frontiers of his region. He has arranged it both vertically, in chronological groups, and horizontally, in culture-circles, taking into account the similarities and differences in the material culture of adjacent regions. To fix the chronology, associated finds are of basic importance—hoards, and closed tomb-groups as well as superimposed cultural deposits and stratigraphy. For cultural synthesis there are distribution-maps, implying cultural geography.

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<sup>1</sup> This article was first published, in French, in Professor Tallgren's journal, *Eurasia Septentrionalis Antiqua*, vol. x, 1936. The English translation has been revised by Professor Tallgren, whom we wish to thank for his permission to print it. In the same volume is another article, in English, giving an account of the author's recent tour in the USSR, and the impressions received there.

## THE METHOD OF PREHISTORIC ARCHAEOLOGY

In such a way, for example, has been determined the 'colour' or history of the Bronze Age of Northern Asia, with its three different cultural provinces : the Taïga or forest region of Siberia, the Steppes of Minoussinsk and those of Kazakstan. These last two provinces are closely connected, and are in their turn related in certain respects to the culture-circles of the Black Sea steppes. But west of those steppes are found objects whose nearest analogues occur, some on Hungarian soil, some in the Caucasus, some on the Kama river, and so forth. This region, therefore, then becomes itself a yet larger unit. As for the Taïga of Northern Siberia, it approaches most closely in character to the culture-circle of the Kama river, west of the Urals. To draw conclusions from absolute chronology one would have recourse to imported objects and stratigraphy, that is, to the deposits in which key-finds occur.

After this preliminary work of analysis, the student would try and achieve a synthetic definition of his province, primarily upon a basis of commercial relations, cultural environment, phases of history and ethnography. As has been pointed out above, also at this synthetic stage of enquiry it is *morphology* which is the student's most valuable instrument of research. Certain archaeologists work mainly with materials of a precise and limited kind—brooches, pottery and ornaments are the first choice ; others make use of forms in their totality, not merely a few phenomena, of a culture in its entirety. Their basis is wider and perhaps also more firm, but the synthesis is more liable to acquire a subjective colouring—though this danger is reduced in the case of really competent students. The somewhat accidental and one-sided nature of the material—wooden objects, woven materials and colours being almost entirely absent—naturally tends to weaken the evidence and the cultural conclusions, but it does not invalidate the method.

In operating thus with forms archaeology is not alone. It is the method of operation adopted by material ethnography and—*mutatis mutandis*, substituting for the forms of objects, other human products such as words, tales, songs, for instance—by historical philology, ethnology, the study of folk-lore, in fact by quite a large group of modern historical sciences. In philology it is loan-words which are the most useful 'fossils'. In reaching their conclusions, the leading philologists take into account the whole vocabulary, the character of the phonèmes, of morphology and of syntax—in a word of that whole which corresponds in archaeology to the cultural whole.

To a certain extent scientists have assumed that the method adopted

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by students of the humanities was as certain and as rigidly exact as that of natural science. The great achievements of positivism, of Darwinism, have been transferred to the humanities, and the course of *evolution*, made subservient to the *laws* (with emphasis on these two terms) observed in history, has brought the latter, as has been thought, to the same degree of exactness as the natural sciences, to the satisfaction of the students of humanities.

But is the formalist method correct when it is applied to the humanities? No, I do not think it is, and probably most archaeologists, who are of the same opinion, are sceptical. Scepticism is a powerful aid to scientific thought. Above all scepticism is justified in the case of creative scientists and is as indispensable as positive knowledge. One must be bold enough to cast doubt both upon the theories of others and upon one's own, and even upon the foundations of one's own science and its method, if one is to achieve a criticism that is not barren but alive. And scepticism is positive if it leads to a knowledge of the limitations of one's field of science, to the suppression of vanity and self-conceit, to an appreciation of realities.

At any rate it appears that archaeology, in spite of its remarkable achievements, has got into a cul-de-sac.<sup>2</sup> On the one hand public interest in our science has enormously increased—in educated circles abroad archaeology is one of the most highly appreciated subjects;<sup>3</sup> and excavation continually brings to light new and admirable material especially in the ancient East and in Northern Asia; on the other hand however, the savant himself shows signs of hesitation, a certain lack of faith and courage, at any rate when he has to teach in a University. The problems are too easy; one might say that the savant was no more than a master-craftsman. The whole subject consists merely of a comparison of forms and of systematization. The chief object has been to elucidate the prehistory of assumed ethnic groups and their cultural relations—in so far as the investigator does not limit himself to a mere examination of types, to classification and chronology, that is, to analysis without an attempt at synthesis, as too often happens. Brilliant systematization, regarded as exact, has not led and does not lead to an elucidation of the organic structure of the whole life of the period studied, to an understanding of social systems, of economic and social

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<sup>2</sup> cf. the publications of the Russian Academy for History of Material Culture, viz. *Soobshcheniya* 1931, 1932: *Problemy* 1933.

<sup>3</sup> cf. *The Illustrated London News*, which has for many years given authoritative and original reports on current work and excavations.

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history, to the history of religious ideas. In short, forms and types, that is, products, have been regarded as more real and alive than the society which created them and whose needs determined these manifestations of life.

Criticism of the existing method of archaeology has been strongly reinforced during the last few years, though up to now no exchange of ideas has resulted. That is because the point of departure is partly political ; that is so in Russia and Germany, both of them countries in which archaeology is used as an important political weapon in the service of ideology in home and foreign policy. To criticism that is strictly scientific and unimpassioned one should adopt an attitude that is dignified and proper ; and one must therefore treat even tendentious criticism objectively and calmly. Have we reached a crisis where the procedure and aims of our science must be revised ? Have the results hitherto obtained become obsolete ? Have we perhaps been pursuing a will-o'-the-wisp which gives neither light nor warmth, which has gone out because it had no real existence ? Or may the work accomplished up to now be of some use, even if it does not constitute the trunk of the tree whose top we are trying to reach ?

### II

An undeniable weakness of prehistoric archaeology—perhaps also of other kindred intellectual sciences, and one we have possibly been heedless or unaware of—is the stereotyped attitude adopted towards historical and cultural phenomena. No state of culture, no evolutionary stage is or ever has been uniform ; there have always been differences. In every culture one discovers rudiments, survivals, archaisms, marginal features, whatever word one may employ. These phenomena exist side by side, often for a long time, and exert a lateral influence on the forms which have developed later ; in no country has there ever been a really uniform rate of evolution or cultural history. The ‘reconstruction’ of a given culture-period is a purely theoretical affair ; in every stage of culture there are ‘dialects’, if I may use a philological metaphor,<sup>4</sup> even in the earliest stages. Any reconstruction of a given culture which disregards ‘dialects’ may lead to serious errors. It is easy to see this in the case, *e.g.*, of Austria-Hungary about 1914. On the one hand there is the centre, Vienna, with its brilliant forms of expression extending right into Bosnia ; but on the other is the living

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<sup>4</sup> As do the Russians, quite correctly in my opinion.

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Bosnian culture, quite different, with a wealth of fine gradations. What a mistake it would be three thousand years hence to infer a uniform Austro-Danubian culture on the basis of stone houses, churches, schools, industrial products, that is, on the basis of the standardized products of life, neglecting the 'dialects', that is, life itself with all its variety? If one were to compose a picture of Bosnia today relying only upon the Viennese phenomena encountered there, one would give an absolutely false impression. It would be a fault not merely in the application of a method but in the method itself. The forms of life in each culture-circle are always multiple, however much one may imagine that progress, 'that which happens', depends upon the leaders, upon individuals and not upon the broad masses.

Another obvious weakness of prehistoric archaeology and one to which philology also is specially susceptible (although it was philology that first began it), is the tendency to see, first, a uniform population or ethnic group behind cultural phenomena, that is, behind the forms of material culture; we have also been too apt to see, in cultural connexions and particularly in cultural transmissions, the movements and migrations of *peoples* instead rather of the products of different social classes and of commerce. That material culture often cannot be equated with a 'people' is proved, for example, by Northwest Siberia at the present day. The material culture of the Vogulians, represented only by some 5000 persons, is divided into two entirely different groups dependent upon the trade and occupations followed. On the other hand, on the basis of material culture it is difficult to regard the Vogulians and Ostiaks as distinct groups of two different peoples, even if one takes into account such essentially national characteristics as their ornaments. Furthermore, in a part of the culture of the Samoyeds, who are not related to them, an obvious identity with that of the Vogulians and Ostiaks of the Ob has been observed; so that we must draw the following conclusion:—even when the economic structure and geographical environment are identical and are associated with the same mode of living, it is evident, in the case of a well-studied living material culture, that 'nationality', 'people', 'ethnic group', does not always impress its mark on the products of material culture and hardly even upon those of intellectual culture. A uniform culture may exist quite independent of ethnographic frontiers. The same phenomenon can be observed also on the steppes, not only in the Arctic regions; amongst the motley prehistoric settlements of the Eurasian steppes, the remains of say the second half of the first

## THE METHOD OF PREHISTORIC ARCHAEOLOGY

millennium B.C. do not enable us to determine national territories, nor even to delimit the frontiers between peoples actually as different from each other as Turks and Iranians. There are geographic and cultural groups which are not ethnographic.

The facts of historical epochs show too that the material culture of a given epoch cannot be identified with a nationality. A classic example is provided by the rococo style of the eighteenth century; if, so far as France and Germany are concerned, we had no remains of this epoch except the material objects and ornaments, it might happen that a student studying the archaeology of the settlements would define a 'national' territory, of course with local variations, extending without a break from the coasts of France to the east of Berlin, perhaps as far as Warsaw. To decide what is 'national' by means of material culture, whether it be archaeological, ethnographic or historical, is to overestimate the power of science and in fact leads into error. Amongst other factors one must not underestimate the importance of fashion and of industrial commerce.

The 'people' itself is not homogeneous in composition, not even in the historical sense. Under such conditions it is not even ideologically correct to try and find the 'people' by means of material culture. The 'people' is a product of history, not of nature, and far less of race. Its distinctive marks are language, which in truth is not always native to it, and above all popular<sup>5</sup> religion, that is to say, beliefs and ritual. The higher the state of evolution and the more important the role played by language, the more often do we find in certain selected individuals—but not in the bulk of the population—a creative element whose expression, in the regions of the mind and perhaps also in those of matter, may take the form of 'nationality'.

As for the migrations of peoples, which have certainly taken place, obviously they have usually been of such a kind that the existing inhabitants have not been annihilated by the newcomers. The invaders are often numerically far inferior, but they may have a decisive influence in the birth of the new material culture. Further, it is always necessary to find out whether the invaders belong to a nomadic people or to a warrior class, whether their culture was really their own or

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<sup>5</sup> When he asked the Vogulians in Siberia about their ethnic relation to the Samoyeds and Zyrians, Professor A. Kannisto of Finland got a very characteristic reply: the first two tribes form an 'ethnographic unit' ('their religion is common to both, but each has its own language'); but the Zyrians are foreigners—they are Christians, 'that is to say, Russians'.

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whether it was borrowed, what stages of cultural development were represented by the old population and by the newcomers respectively. In regard to the products of material culture an exaggerated importance has been attributed to 'nationality'. The scientists of every country have erred in this respect, especially the Germans who often confuse the idea of a cultural with that of a national province, failing to examine its character in each individual instance. National 'colour' is hardly ever primary in cultural products.

There were undoubtedly ethnographic provinces in prehistoric Europe. It is easiest to distinguish the latest, protohistoric, ones, with the help of facts and documents of a historical and philological nature, or by means of the study of place-names. One can do this, for example, for the Celtic and Germanic groupings at the beginning of the Roman period. The remarks set down here apply above all to the preceding prehistoric periods, when it is impossible to throw any light on the nationality of the population by means of the relics of their material culture. In the primitive archaeological remains of Europe, it is exceptional to find any indications of nationality, except in the case of a highly differentiated insular culture.

### III

In consequence of the errors into which archaeology has fallen through the systematization of material culture, that is to say, by formalist study and by the investigations of ethnography, and in general by its formalist empirical methods, there has arisen a strong demand for a modification of the whole character and method of archaeology. This claim is justified, I think, so far as the starting-point and synthesis are concerned, but only in part as regards the treatment of material. Archaeology should cease to be a 'natural science', founded upon the study of objects and forms, and should become an economic-social, historical science. As a starting-point one should take the elucidation of the economic system, of the economic and social *basis*, of which the objects are manifestations. To the extent to which the student relies upon material culture, the essential material will consist of such objects as play a decisive part in the genesis of the culture-stage; not ornaments but the instruments of production—implements, *necessary* things; in regard to such it is their *function* which is decisive, not their *form* or analogies. In this last instance one does it violence by separating the object from the system of production of which it is the instrument and from its economic environment. One should no longer deal with

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it in isolation but rather in association with its group or complex ; thus, for instance, not only the sickle but also the hoe, hammer-stones, pots, the whole organic body of the craftsman's equipment.<sup>6</sup> Or again, to take an example from the steppe peoples, not only horse-trappings but also the horse as a warrior's charger : the saddle, the stirrups, the arms (sabre, dirk, shield), perhaps the bearer of the shield and his equipment.<sup>7</sup> It is surprising how much nearer one gets to life by this method of approach than by a study of forms, how the way opens out in front of the enquirer, how the sense of frustration, of reaching a cul-de-sac, disappears entirely. I am sure that philology will find the same thing when it thus liberates itself. I think that philology and archaeology, which are now so dry and whose vitalizing points of contact are so few, will broaden out to the mutual advantage of both, and navigate their allied craft out into the open waters. Use and function, not form—that is the starting-point of research.

Archaeology is now beginning to take much more interest in the motley and many-sided aspects of life. The whole mechanism concealed behind phenomena is a complex ; the men of ancient times were not just 'scientific specimens' ; a cultural region by no means always coincides with that of a single people, nor is its frontier a national frontier. The economic state of the population is and has been a decisive factor ; the presence or absence of social classes, specialization of profession, craftsmanship or home industry. The economic system as a whole was of more significance than nationality. In the same way, slavery, feudalism, foreign trade, trade conditions—all such are of more importance than the supposed ' evolution ' of local types of implements and tools which very often never occurred at all. One and the same ethnographic region contains within itself both rich and poor, nucleations and marginal areas, cultural ' dialects '. Therefore I regard culture as a human product and not as a natural product. It is a social product and it should be studied as such.<sup>8</sup> Historical science is not an exact science.

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<sup>6</sup> Holmsten, *Problems of the Russian Academy, etc.*, 1932, no. 11-12.

<sup>7</sup> Holmsten, *op. cit.*

<sup>8</sup> Latterly the importance of these conditions and of economics in the study of prehistoric cultures has been frequently emphasized in the archaeological literature of Northern Europe. In this new orientation the many excellent syntheses of A. W. Brøgger dealing with Norwegian archaeology are models of their kind. Professor H. Moora, of Tartu, amongst others, is working on the same lines. In Britain, Crawford (in *Man and his Past*, 1921) foreshadowed the approach of a synthetic study of cultures,

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This is not the place to deal with every aspect of the subject. My criticism of formal research has been set forth and substantiated, and one may proceed to resume upon a fresh basis the examination of many archaeological problems. But one must not set out to destroy the old science, as was done, for example, in Russia, the land of the Revolution. It is agreed that there co-exist both marginal areas and centres, evolved forms and survivals ; progress, we say it again, is usually achieved at the centre and by a population capable of evolving. The existing chronological tables and type-classifications, the great analytical achievements of the archaeologists of the last century are not, in these circumstances, pure theory or merely a game ; they correspond to a partial reality, to the extent that they represent the cultural phenomena of a definite epoch. From them proceed the new forms, determining the future culture, although the old 'types' may still survive in marginal areas. The Renaissance, for instance, is a true short culture-period, even though its derivatives are still to be seen some two hundred years later (in Sweden for instance) than elsewhere. If I may be allowed the simile, it is as if fathers and grandfathers, uncles, aunts and cousins continued to live in the same region together with all their different culture-products, and not only the direct descendants of the main genealogical line. Different cultures co-exist in a culture-circle, though they are not of equal importance in the history of humanity. It is not only over-generalization and schematism that are dangerous to science, but also the negation of phenomena.

In this article I have said that scepticism is the most effective test of research, and one of the most important factors in its advancement. Dogmatism and canons are not proper to science ; they are just as reprehensible in social science—as one may observe in the USSR—as in theology. It is proper to emphasize this fact in view of the archaeological exaggerations current in the USSR and the racial dogmatism of Germany today. The 'archaeology' of these two States is in our days sometimes, but of course not always, mere dogmatism, scholasticism, deriving its proofs, even in the form of verbal

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which would attempt to reconstruct the economic conditions of a society by means of its material products and by restoring its natural environment. To do this has been the aim of the best British excavators in recent years, as their reports indicate. In general archaeology this view-point is perhaps most conspicuous in the works of Professor Gordon Childe, particularly in his last, fully reviewed in *ANTIQUITY*, December 1936. 'Typology' and pure formalism are in fact already becoming rare almost everywhere.

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quotations, from the works of political authorities or from the speeches, dogmas and assertions of many leading statesmen. *Vanitas vanitatum* ! It is useless to engage in controversy with them. Enough to quote Merejkowski's remarks on the same phenomenon, from his essay on Don Quixote : ' The misfortune of the whole civilization [of the period] was that it was a lifeless scholastic system ; it lacked the vitalizing qualities of science—experiment, a sceptical attitude, criticism. Authority, no matter whether it be the Bible or Aristotle, the Œcumenical Councils or Averroës, at any rate authority—that is, a force external and foreign to science—excludes all liberty and independence of thought, exacts an absolute obedience and compliance . . . substitutes a blind faith for unfettered research, imitation for originality, submission to external authority for freedom of thought . . . and signifies the death of science, whatever may be the political label borne by authority '.

The aim of archaeology is unquestionably to elucidate the cultural, social, economic and intellectual conditions during the long periods for which historical documents are not available. But we must not strive to attain it prematurely or dogmatically, without a rigid analysis of the material, without classifying and systematizing it. Unfortunately this necessity is not sufficiently realized, *e.g.* in the USSR where much useful research work has been done, but where in pursuance of the Marxist theory, every ancient culture is examined for traces of ' stages ' illustrating the doctrine of a social evolution from matriarchy to patriarchy and feudalism, as well as from totemism to agricultural divinities—an evolution which has certainly not taken place in every region and period.

The criticism whose legitimate aspects I have examined has undoubtedly succeeded in proving that a considerable portion of the achievements of archaeology is obsolete, but not the greater portion ; excavations, museum collections, descriptive catalogues remain, and so also do the lexicons, comparative dictionaries and grammars of the philologists. But we must give up the attempt to achieve precision, and be content with life ; we must give up too the treatment of forms as if they were links in an assumed typological evolution ; it is use and practice which determine the forms of things. By taking as the starting-point of research the economic basis and the structure of that life of which archaeological finds are the evidence, morphology, chronology, geography and stratigraphy remain valuable instruments of scientific investigation.

# Dwelling-houses in Jutland in the Iron Age

by GUDMUND HATT

FOR natural reasons it is somewhat difficult to find remnants of prehistoric dwellings in Denmark. Our early forefathers utilized perishable materials in their house building, such as wood and straw. They made use also of clay and sod and, to a small extent, of natural stones. However, Denmark is one of the most intensely cultivated lands of Europe. The plough has been almost everywhere; and when the ploughshare has gone through the remnants of a hut of sod and clay the site is generally spoilt for the archaeologist. As a rule, we cannot expect to find any house-site intact unless it has been covered with a layer of soil, sufficient for protection against the plough.

While our knowledge of the prehistoric dwellings is, on the whole, very incomplete, we know something about the dwellings of the Iron Age for the cultural deposits are comparatively thick. It was probably not until the Early Iron Age—*i.e.* the La Tène and Roman periods—that agriculture reached such a stage of development that successive generations might dwell on the same site. Our best finds are from the northern part of Jutland. In Thy and Himmerland there are a number of deposits of Roman and the pre-Roman Iron Age with a depth of 1–2 m., containing several dwelling-sites above each other. Evidently, there existed in northern Jutland small village-sites, in the Roman period and probably somewhat earlier, of permanent habitation and occupied for several generations.

An example of these village-sites is in the parish of Vestervig in Thy (plan, FIG. 1). Part of a large modern farm, Mariesminde, is seen on the right. These modern buildings are placed on the eastern slope of an oval elevation, about 125 m. long, 75 m. broad and 2 m. high, which consists of accumulations from the Roman Iron Age village. West of the elevation is a hollow, where a clay-pit has been worked in later times. West of the hollow the ground rises again, and here also are remains of the Iron Age village. The total length of the village-site east to west is about 250 m. No traces of the buildings are to be seen upon the surface of the ground. Remains have been found accidentally by farm workers, and systematic excavations last summer revealed a number of house-sites. Three excavations are indicated on the plan. In the western excavation the remains of five houses were uncovered, lying partly above each other. The middle excavation was not very rich in house remains, because it happened to be placed between two rows of houses, a southern and a northern row. On the south of this

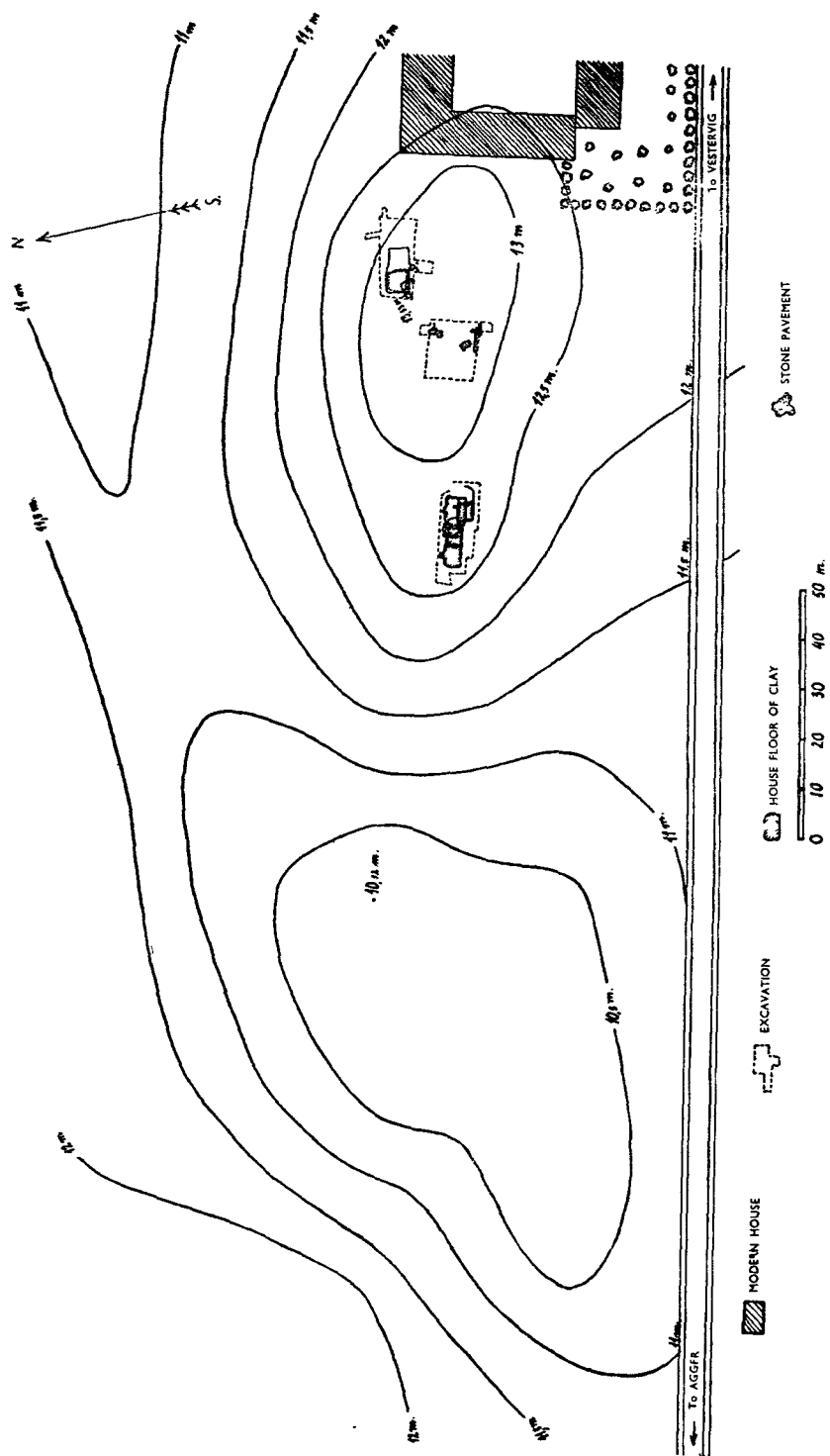


FIG. 1. VILLAGE-SITE, VESTERVIG, JUTLAND

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excavation we struck the sides of two houses which had their entrances towards the north ; and on the north side we found the entrance pavement of a house.

The village consisted of two rows of houses, a southern one with entrances facing north, and a northern one with entrances facing south. In the southern row we excavated the remains of five houses, and in the northern row one house. Besides these others were found. Evidently, we have here an example of the long-type village, consisting of two rows of houses facing a street.

We have reason to believe that this type of village was general in northern Jutland in the Iron Age. The site in Tolstrup, near Aars in Himmerland, part of which was excavated in 1927,<sup>1</sup> had a paved street running east and west, separating the houses. The fact that almost all the Iron Age houses excavated in Jutland are long houses, oriented roughly east-west and with entrances in one of the long sides, is in accord with the theory that the Iron Age village of Jutland was a typical long-village.

I would call attention to the tremendous difference in size between the Iron Age huts and a modern farmhouse. Mariesminde, of which only a part is seen on the plan (FIG. 1), is a fantastic palace compared to the wretched huts of the Roman Iron Age.

A plan and section of three of the house-sites in the western excavation are shown in FIG. 2: B and H, resting upon the original surface, are contemporary ; C was built later, upon the remnants of older houses. The houses are very small ; B is barely 6 m. long by 4 m. broad, and H is  $4\frac{1}{2}$  m. by  $3\frac{1}{2}$  m. The floor is made of clay, and continues through the doorway. The walls are of earth, perhaps sod ; but on the inside they were plastered with a thick layer of clay. A few cm. of this wall-plaster was still in position along the edge of the clay floor ; most of it had fallen in however. It was quite easy to distinguish between the wall-plaster and the flooring.

Both houses B and H (FIG. 2) had regular hearths. House B had originally two hearths, one almost rectangular in the east end and one round in the west end, both appearing as hard-burnt parts of the clay floor. At a later period, house B had an oval hearth, also of burnt clay, but decorated. House H had a round hearth of burnt clay resting upon a layer of stones ; originally, the hearth in house H was rectangular and placed a little farther west. Both B and H have had four inner

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<sup>1</sup> Gudmund Hatt, 'Deux trouvailles de stations habitées de l'ancien âge du fer (Mors et Himmerland)'. *Mém de la Soc. Roy. des Antiq. du Nord*, 1928.

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roof-posts. The houses were not burnt, therefore we did not find anything of the posts themselves; but the post-holes are clearly evident in the sand. House H had two door-posts.

House C was not quite as well preserved; part of the northern edge of the floor was disturbed, and I cannot say whether the walls were plastered with clay. Curiously there was no proper fireplace. A large earthen vessel was found buried in the floor. It is not uncommon to find large pots buried in a house-floor; and in several cases I have interpreted them as storage-vessels or water-containers. In this

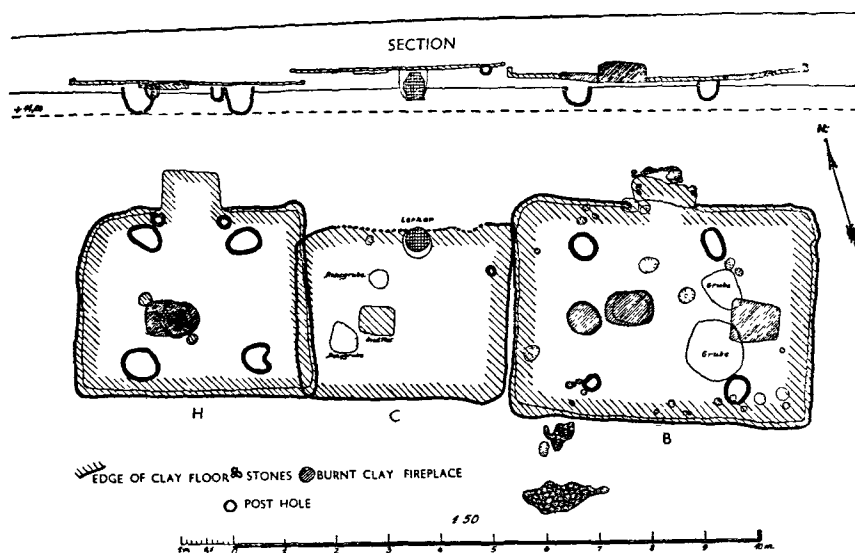


FIG. 2. SECTION AND PLAN OF HOUSE-SITES, VESTERVIG, JUTLAND

particular case, however, the pot was buried upside down and can hardly have served any practical purpose.

House C belongs to the same small and almost rectangular type as B and H. It had probably four roof-posts, although I was not able to locate more than one post-hole.

The later fireplace in house B (FIG. 7) is incised with small squares with rounded corners. The underlying idea may perhaps be the representation of a layer of pebbles—actually, a layer of small stones is very often found in a hearth beneath the burnt clay. This form of decoration has not been found before in Denmark; it has some similarity to a hearth at the Glastonbury village-site.

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A house site (FIG. 3) from the eastern excavation at Mariesminde contained a quantity of charred wood, some of it being oak, probably from the rafters. There were also pieces of worked wood. Near the fireplace were some wooden bars in a frame, probably part of a grate or shelf, placed above the fireplace. The house had four roof-posts around the hearth, all in the western part of the house. In the middle of the clay floor a hearth of hardbaked clay rests upon a layer of stones.

A quantity of potsherds were found on the site and a number of vessels have been reconstructed, many of them with ornament; they date the house to late Roman Iron Age.

House E (FIG. 3) is somewhat later than those already described. It is of more advanced type, and much larger, being 9 m. long and 5 m. broad. The western part of the hut, with clay floor, fireplace and four roof-posts, corresponds to the older and smaller houses, but a simple outhouse was added. A little burnt barley was found.

The small, almost rectangular, type of house with four roof-posts standing around a fireplace is known from the pre-Roman Iron Age. The Trolldtoft house<sup>2</sup> is an example—although it differs from the Mariesminde houses by having walls of combustible materials, supported by wall-posts.

Typologically it would seem reasonable to regard the short, almost square house, as relatively old, and the long-type with an outhouse as comparatively late. It must be admitted, however, that the latter did exist in pre-Roman times. The well known Kraghede house, excavated by Th. Thomsen, is of the long-type. The Solbjerg house, where the charred remains of three cows and a horse are evidence that the eastern portion of the long-house was used as a stable, is late pre-Roman.<sup>3</sup> The short-house, with four roof-posts, persisted into the Migration Period. The Fredsø house belongs to this type.<sup>4</sup>

In the long-house at Mariesminde, in the northwest corner, is a clay bench. South of the clay bench and west of the fireplace is a big stone with a basin-shaped hollow in the middle. Stones of that shape have been designated by Danish archaeologists, 'gate-post-stones', and considered as supports for gate- or door-posts. It is quite evident, however, that no door can have existed at the place where this stone is

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<sup>2</sup> Gudmund Hatt 'En Jernalders Hustomt i Trolldtoft'. *Aarbøger for Nordisk Oldkyndighed og Historie*, 1935.

<sup>3</sup> Gudmund Hatt, 'Deux trouvailles', p. 189.

<sup>4</sup> Gudmund Hatt, 'Emplacement d'incendie d'une maison de l'âge du fer dans l'île de Mors'. *Mém. de la Soc. Roy. des Antiq. du Nord*, 1932.

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imbedded in the floor. This basin-shaped stone must have had some other use, probably for grinding some kind of foodstuff.

Ten kilometres from Mariesminde is the most famous of Jutland's Iron Age villages, the Ginderup site, where Hans Kjaer in 1922 uncovered a very interesting house, and where the Danish National

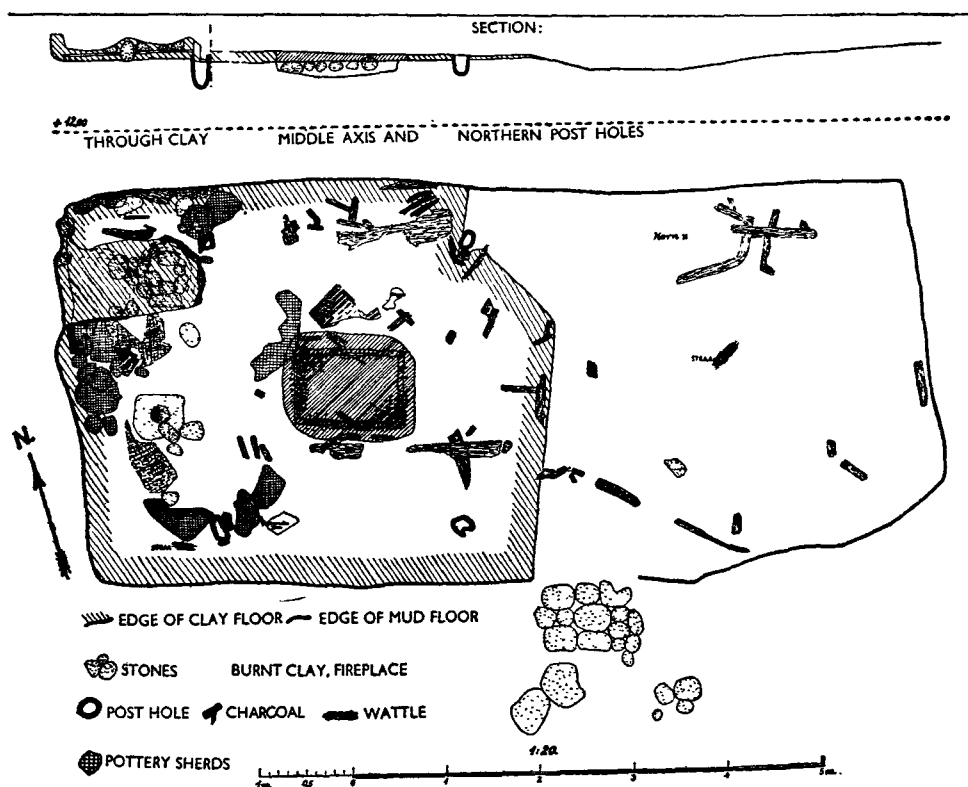


FIG. 3. SECTION AND PLAN OF HOUSE-SITE E, MARIESMINDE, JUTLAND

Museum has carried out excavations.<sup>5</sup> The Ginderup village-site was inhabited through the whole of the Roman Iron Age. The culture-deposit is 2 m. thick, and at one place we found 7 houses above each other. The dating of the Ginderup site is not entirely dependent upon pottery; in 1934 we had the good fortune to find a small hoard

<sup>5</sup> Hans Kjaer in *Congressus Soc. Arch. Balt. Rigae*, 1930, p. 163 ff.; *Proc. Congress of Preh. and Prot. Sciences*, 1932 (Oxford 1934), p. 287 ff.



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of Roman coins concealed in one of the house floors. These coins must have been buried at some time about the year 100 A.D. Below the level of this house three older houses were uncovered; and in higher levels the remains of three houses were found.<sup>6</sup>

One would naturally expect to find great similarity between the

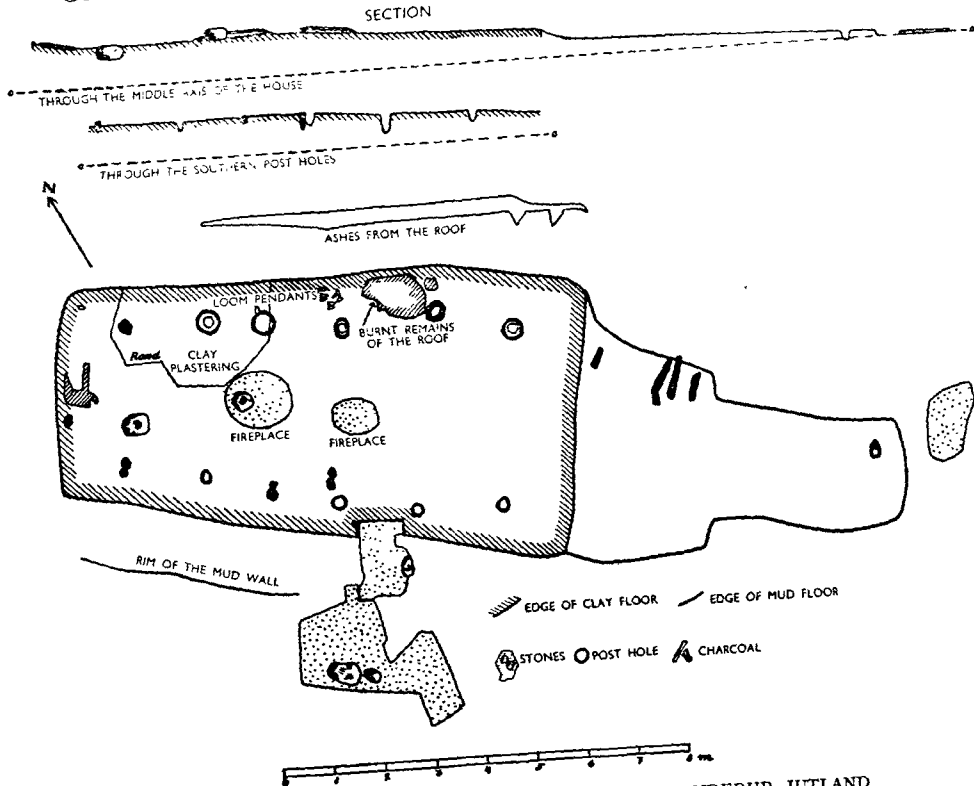


FIG. 4. SECTION AND PLAN OF TYPICAL HOUSE, GINDERUP, JUTLAND

Ginderup and the Mariesminde houses, and it is most apparent in the upper layers. The short-house type with four roof-posts has not been proved at Ginderup. A common feature is the earth or sod wall with clay plaster. But we do not know any Ginderup house with only four roof-posts.

A typical house (FIGS. 4 and 9) 17 m. long and 5 m. broad, consists

<sup>6</sup> Gudmund Hatt, 'Jernaldersbopladsen ved Ginderup i Thy'. Fra Nationalmuseets Arbejdsmark, 1935. *Acta Archaeologica*, 1935, VI, 278-280.

PLATE I

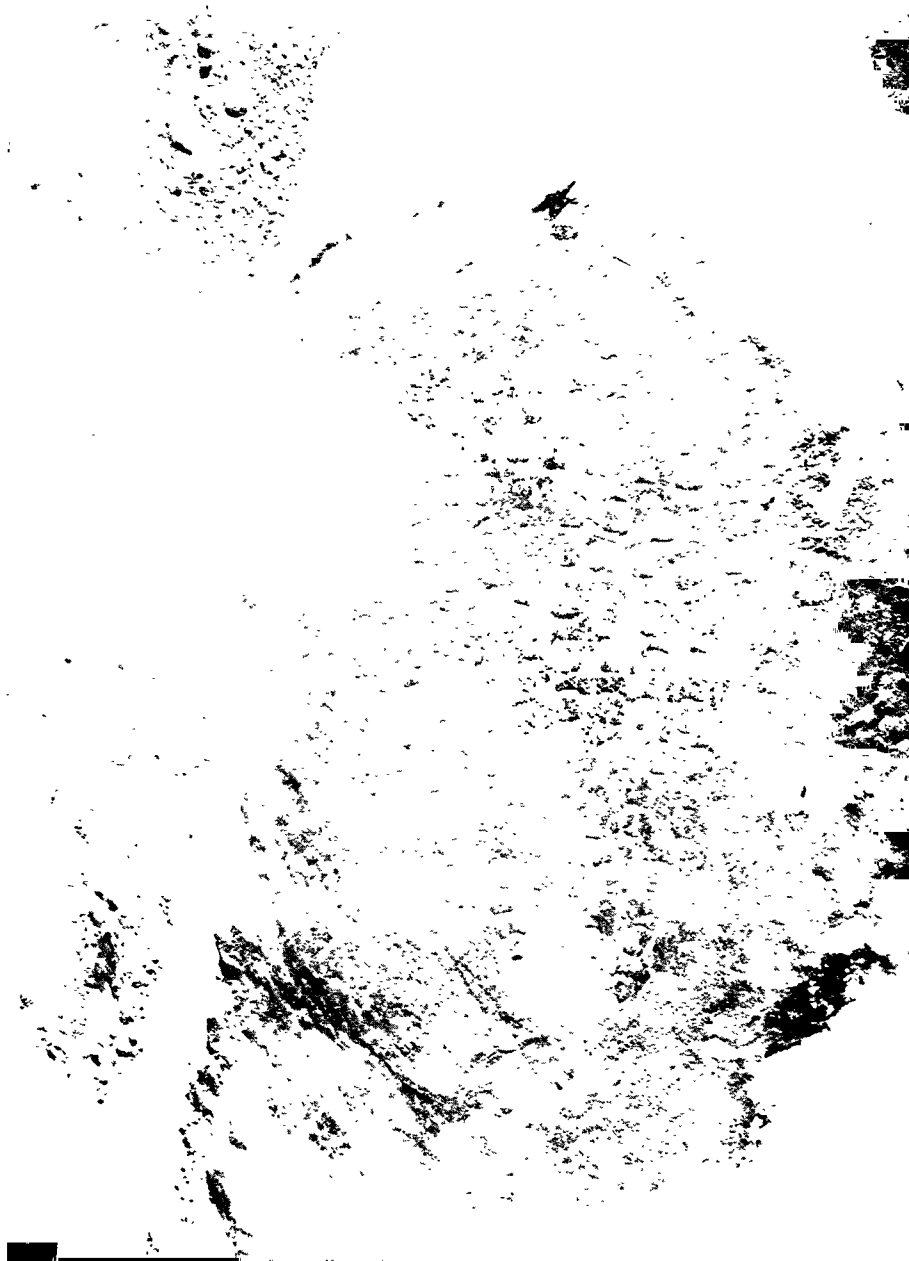


FIG. 7. FIRE-PLACE, HOUSE B, VISTERVIG, JUTLAND (See p. 105)

PLATE II



FIG. 8. HI ARTH, WITH INCISED BORDERS, HOUSE E., MARUSMINDI, JUTLAND. (See p. 166)

PLATE III

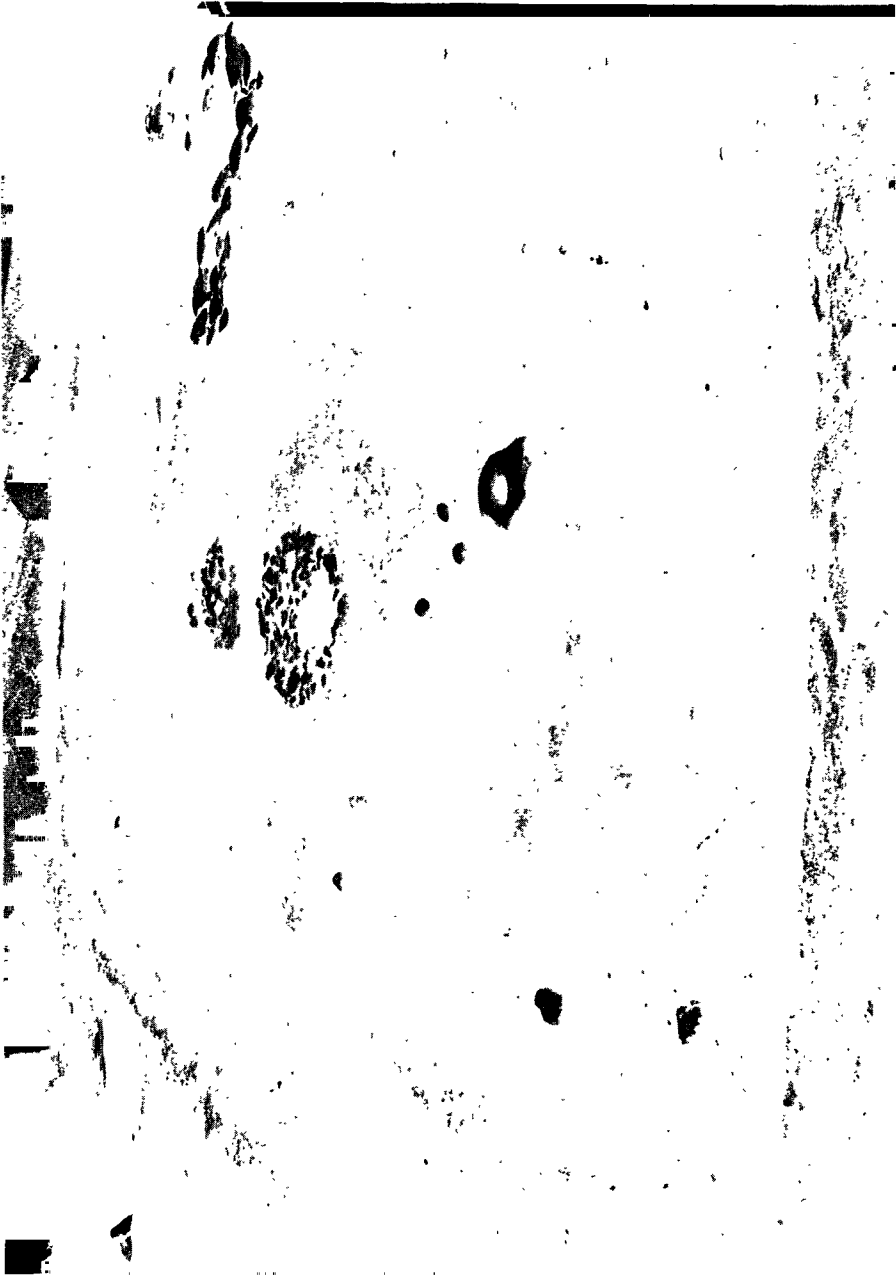


FIG. 9. HOUSE SITE, GINDRUP, JUTLAND, SEEN FROM THE WEST (See p. 168)

PLATE IV



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FIG. 10 SUBILRRANLEAN STRUCTURE OF A LONG-HOUSE, BAEKMOEN, JUTLAND,  
SEEN FROM THE NORTH. (See p. 172)

## DWELLING-HOUSES IN JUTLAND IN THE IRON AGE

of a western part with clay floor and an eastern part with mud floor. The western part is evidently the dwelling house and has two fireplaces and twelve roof-posts. The house had been burnt, and stumps of charred wood were still standing in some of the post-holes (FIG. 9). The mud walls were  $1\frac{1}{4}$  m. thick at the bottom. The eastern part was

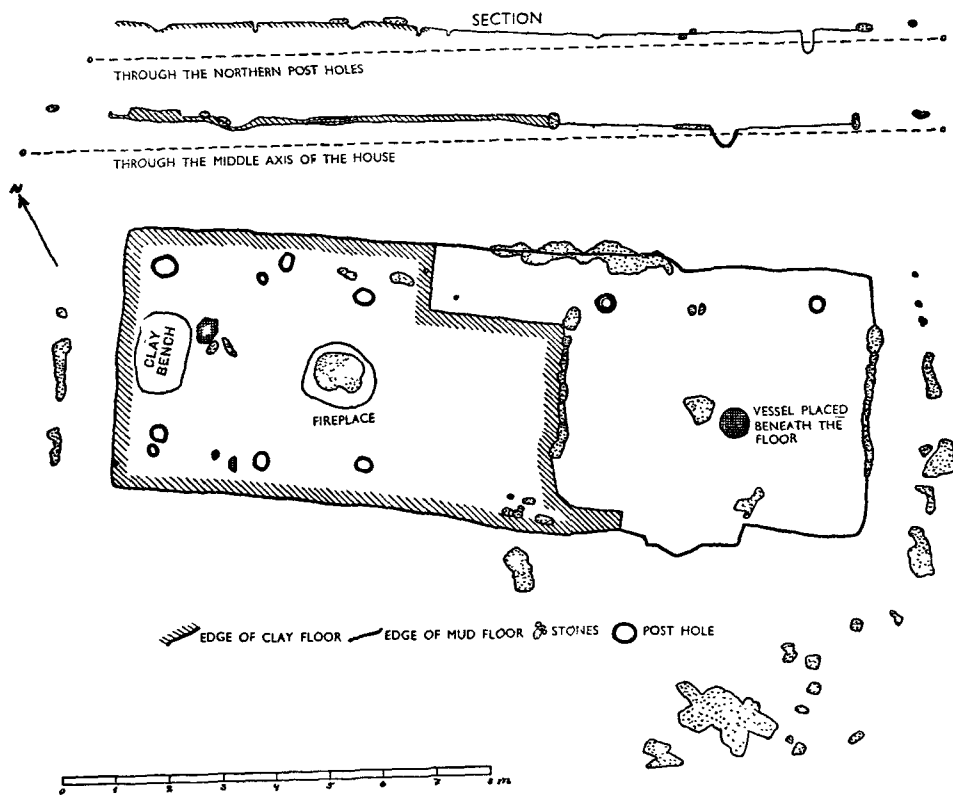


FIG. 5. SECTION AND PLAN OF LONG-TYPE HOUSE, GINDERUP, JUTLAND

an outhouse; no post-holes were found and probably the rafters rested directly on low mud walls.

In another house (FIG. 5) from the middle layer of the Ginderup village site, the long-type again consists of a western part with clay floor and an eastern part with mud floor. The two rows of roof-supports continued through the whole length of the house, although I was not able to find all the post-holes because the house had not been burnt. The entrance-pavement was dilapidated; probably some of the

## ANTIQUITY

stones were used elsewhere. The footing of the mud walls was partly lined with stones, inside and outside. A row of stones separated the western part of the house from the eastern part. Near the west wall was a clay bench. In the middle of the eastern part of the house a big pot was buried in the clay floor, probably a water container or a storage vessel.

An attempt at reconstruction (FIG. 6) is shown by a transverse section through a house with mud walls, clay floor, fireplace and inner roof-posts. From actual measurements the thickness of the mud walls varied from 1 to  $1\frac{1}{2}$  m. The height of the walls is estimated from the clay plaster found; there are reasons for assuming that it was between  $1\frac{1}{2}$  and 2 m. high. About the roof we know something; as parts lay upon the floors of burnt houses. It consisted of a layer of natural rafters, upon which was a covering of straw, or in some cases a layer of very thin rods, and this again supported a layer of heather-turf. The slope of the roof was probably not steep or the heather-turf would have slipped off. Further, we know that the roof rested upon two rows of posts, standing inside the house. We do not know how the posts supported the roof, but I suggest that they carried horizontal beams for this purpose. The architect, H. Zangenberg, has claimed—I think, correctly—that the roof must have had some kind of a ridge-beam. As there were no posts in the middle axis of the house, the question of support for the ridge-beam remains. Zangenberg suggests that the posts may have consisted of tree-trunks with one long natural branch, the two rows of trunks supporting on their upper ends two horizontal side-beams, and the crossing ends of the long branches supporting the ridge-beam.<sup>7</sup> This solution seems quite possible, though it may underrate the carpentry of Iron Age house-builders. Natural trunks were in some cases used as roof-posts, but in others, four-sided hewn planks were used for the same purpose, *e.g.* in the long-house at Mariesminde (FIG. 3) Although I reproduce (FIG. 6) Zangenberg's suggestion, I do not regard it as the most likely solution of the problem. In one of the burnt houses on the Ginderup site, I noticed in a mass of charcoal a wooden peg which had been used for holding together two pieces of timber. The technique of housebuilding had probably reached a stage where it was possible to hold a ridge-beam by means of sloping timbers which were in some way supported by horizontal beams, resting upon the roof-posts.

Zangenberg's conception calls to mind Seebohm's and Meitzen's

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<sup>7</sup> H. Zangenberg, 'Gammel Bygeskik'. *Skiveaarbogen*, 1930, XXII, 5-17.

## DWELLING-HOUSES IN JUTLAND IN THE IRON AGE

attempts to reconstruct the Cymric tribal house, based upon the former's interpretation of a description of this building in the 'Ancient laws of Wales'.<sup>8</sup> It should be added, however, that Zangenberg was not acquainted with Seebohm's or Meitzen's reconstructions when he worked out his theory.

Mud walls were in general use in Iron Age houses in the Limfjord region. In some the lower parts were reinforced with stones; this feature is very common in the Himmerland sites, and there also occurs a

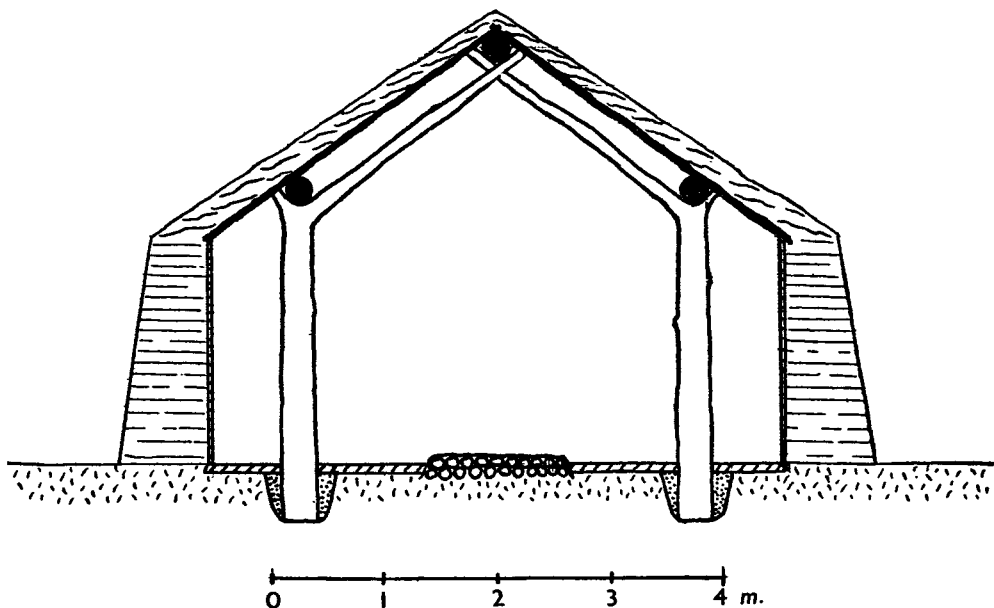


FIG. 6. TRANSVERSE SECTION OF HOUSE, GINDERUP, JUTLAND

special type where the east end of the house is rounded, somewhat sunk into the ground, and set with big stones. This special type is known from the Iron Age site in Tolstrup near Aars,<sup>9</sup> and also from Engelstrup near Løgstør.

In Vendsyssel, on the other hand, wattle and daub walls were used in the Iron Age. Houses of this description are known from Kraghede, and from Rakkeby near Hjørring. The wattle and daub houses seem to have one important feature in common with the mud houses—the

<sup>8</sup> Frederic Seebohm, *The English Village Community*, 2nd ed. 1883, p. 239 ff. August Meitzen, *Siedelung und Agrarwesen der Westgermanen und Ostgermanen*, 1895, I, 195. <sup>9</sup> Gudmund Hatt, 'Deux trouvailles', p. 204 ff.



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presence of inner roof-posts. The Kraghede house had only four posts, standing around the fireplace in the western part of the house, somewhat similar to the plan of the long-house at Mariesminde. The Rakkeby house, on the other hand, had two rows of roof-posts, six in each row, and corresponds to the Ginderup type.

I refrain from describing the Vendsyssel Iron Age houses, but would like to mention the excavations at Bækmoien, near Frederikshavn, because there was found a cellar-like subterranean structure (FIG. 10) in connexion with a long-house. The house lay as usual about east to west. It had been burnt; and the layer of ashes continued down through the subterranean chamber, which shows that the two were of the same period. The subterranean structure began from the eastern part of the north side of the house, and extended 8 m. north. It was in three parts: a short north-passage, a long south-passage, and in the middle a round chamber, nearly 3 m. in diameter,  $1\frac{1}{4}$  m. deep. The sides of the passages and the chamber are set with big stones.

There is a whole group of these subterranean structures at Bækmoien. I found four, but excavated only two of them. The connexion with a long-house could only be ascertained in one case.

Subterranean structures or 'earth-houses' of this type are known only in a small area near Frederikshavn, and not in any other part of Jutland. Sophus Müller has published<sup>10</sup> some earth-houses from Donbæk near Frederikshavn and compared them to secret cellars and passage ways mentioned in the Icelandic sagas. The fact that these structures are found only in one small area near the coast, and only from late pre-Roman and early Roman Iron Age sites, suggests a foreign influence. Subterranean earth-houses are, of course, well known in Scotland and Ireland. May the idea have come from those countries? It should be added that the method of roofing the subterranean chamber with stone flags by means of a sort of false vault construction is not known in our earth houses. It is, however, known from certain Roman Iron Age graves in northern Jutland.<sup>11</sup>

The long-house, with its two rows of roof supporting posts, has a very wide distribution in Jutland, particularly in the Limfjord regions and in Vendsyssel. Its existence has also been proved in western and southern Jutland. Last spring (1936), with Inspector Raben of

<sup>10</sup> Sophus Müller, 'Vendsyssel-Studier'. *Aarbøger for Nordisk Oldkyndighed og Historie*, 1912, p. 112-124.

<sup>11</sup> J. Brøndsted, 'Ein nordjütisches Steingrab aus römischer Zeit'. *Acta Archaeologica*, 1934, v, 167-175.

## DWELLING-HOUSES IN JUTLAND IN THE IRON AGE

the Sønderberg Museum, I excavated a Roman Iron Age long-house with two rows of inner post-holes in the island of Als.

Though certain local variations occur the Jutland long-house of the Iron Age is a fairly consistent type. It is remarkable that almost all the long-houses excavated in Jutland have the same orientation; their length lies between east-west and southeast-northwest. With very few exceptions the fireplace is in the western half, which evidently was the most important part of the house,

The Jutland long-houses are related to Scandinavian Iron Age houses excavated by Swedish and Norwegian archaeologists.<sup>12</sup> It is generally agreed that the Jutland Iron Age long-houses belong to a large northwest European group. Late forms may still be found inhabited in Iceland and the Faeroes. The shielings and black houses of the Hebrides are probably also late forms of this general group, although they have no inner posts.

As to the wider connexions of this group, I think, with Mårten Stenberger, that they should be sought in Western Europe. Long-houses with inner rows of posts are known from West Germanic and Celtic regions. Evidently this basilica-style existed in some parts of Western Europe prior to the Roman conquest, *e.g.* in the Netherlands, as is shown by van Giffen's excavations.<sup>13</sup>

There may have been long-houses in Jutland earlier than the Iron Age. As a matter of fact, we know from Winther's excavations at Troldebjerg, Langeland, that they existed there in Neolithic times. However, the Troldebjerg houses were of a different type, having only one row of roof-supporting posts.<sup>14</sup> Unfortunately, we do not yet know how early the long-house with two rows of inner roof-posts reached Jutland, because we know almost nothing about our own Bronze Age houses.

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<sup>12</sup> Among the important works should be mentioned:—

Haakon Shetelig, *En ældre jernalders gaard paa Jæderen*. (Bergens Museums Aarbeg, 1909).

Jan Petersen, 'Gamle Gårdsanlegg i Rogaland', I-II, 1933 and 1936. (Instituttet for sammenlignende Kulturforskning, serie B, XXIII and XXXI).

Sigurd Grieg, 'Jernaldershus på Lista'. (Instituttet for sammenlignende Kulturforskning, serie B, XXVII, 1934).

Mårten Stenberger, *Öland under äldre järnåldern*. (Stockholm, 1933).

<sup>13</sup> Albert Egges van Giffen, 'Der Warf in Ezinge, Provinz Groningen, Holland, und seine westgermanischen Häuser'. *Germania*, 1936, Jahrg. 20, p. 40-47.

<sup>14</sup> J. Winther, *Troldebjerg, en bymaessig Bebyggelse fra Danmarks yngre Stenalder*. (Rudkøbing, 1935).

# Egyptian Portrait-Sculpture

by ALEXANDER SCHARFF\*

*Professor of Egyptology, Munich University*

WE are often far too ready to apply to Egyptian art the same standards which we use in dealing with Greek, Roman, medieval and modern works. Thus, for example, we are apt to speak of Egyptian 'masters' or 'master-hands', expressions which constantly occur in connexion with Greek sculpture or Renaissance painting; or we assume that the identity of an Egyptian portrait can be established just as if it were a question of a definite Renaissance personality. Now one of the chief characteristics of Egyptian art is its impersonality. The Egyptians had no conception of a work of art produced, so to speak, from *pietas*, to perpetuate the features of some dear departed, or such as it would be pleasant to possess from sheer delight in artistry; in particular, the artistic contemplation and enjoyment of a work of art as we understand it could scarcely have been understood by an Egyptian.

In Egypt, artistic creation was handicraft in the best sense of the term, and every work of art owed its being in some way to religious considerations. Those are the two corner-stones on which all understanding of Egyptian art is necessarily based. The protector of the handicraftsman and of the artist was the god Ptah of Memphis, who himself as Creator shaped men on the potter's wheel. The hieroglyph for all words connected with art and handicraft is the tool with which stone vessels were hollowed out in primitive times, and the high priest of the god Ptah was called 'Chief leader of the handicraftsmen', or, if you prefer it, 'of the artists'—for the Egyptian language possessed but one word for both. Thus in a painting of the time of Ramses II, the creator of a statue and the maker of a chair sit peacefully together in their workshop. The only distinction made in the accompanying inscription is that the sculptor is called 'the Quickener': that is a term which became current in the New Empire to explain the function of sculpture, which is to keep the dead man alive by means of his image,

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\* Translated by R. G. Austin.

## EGYPTIAN PORTRAIT-SCULPTURE

rather for the soul in the grave than for the survivors who do sacrifice to it. That brings us to the second cardinal point of Egyptian sculpture—religious service.

The collections of statues which we admire in museums invariably come from tombs or temples: therefore they either served the cult of the dead, as for instance the so-called Ka-statues of the Old Kingdom, or were consecrated to a god, or else they represented the deified king, a god himself, or a divine animal. It would be difficult to point to an Egyptian statue which does not fall into one or other of these categories. The absolute contrast between the modern conception of sculpture and the early Egyptian may be most clearly seen if we consider the way in which most grave-statues of the Old Kingdom were arranged. An important element of the tomb of the nobles of that time (c. 2500 B.C.), the Mastaba, was the statue-chamber, known today as Serdab. Normally it is a tiny undecorated rectangular room, with no door; it was either entirely separate from the cult-chamber of the tomb (in which sacrifices were made to the statues erected in the Serdab), or else was connected merely by an aperture in the wall. Very nearly dark as was this cult-chamber, the darkness of the statue-chamber was complete: no one could see and admire the statue. Further, as if this absolute seclusion were not enough, the statue was often placed in a hermetically sealed stone chest: for example the group of the dwarf Seneb and his family at Gizeh, which to us is specially pleasing. If we keep properly in mind this secretive disposal of the statues, it is an obvious profanation for a modern to bring them to the light of day and set them in museums where they can be viewed from every side. Only on rare occasions did the Egyptians of the later Old Kingdom relax their austere practice, as for instance where the statue-chamber was made so far accessible that the visitor could go round it and peep at the statues (only through the aperture, of course); or where, as in the largest of the Sakkara tombs, the statue of Mereruka, the occupant, stands actually at the opening which does duty for a door in the cult-chamber, as if it wished to come down and receive the sacrificial meats.<sup>1</sup> The temple-statues were products of genuine religious art in the truest sense; even the dedicatory statues of private individuals were primarily directed to the divinity, even if at the moment of erection they served to perpetuate the fame of the dedicator; they were continually being

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<sup>1</sup> Capart, *Memphis*, fig. 317; there are also exceptional cases of Mastabas where the statue was placed in the cult-chamber (e.g. *Journal of Egyptian Archaeology* VI, plate 25).

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ousted by new dedicatory statues, as is proved by the numerous figures discovered in the *cachette* in the temple of Karnak. None of these statues possessed contemplative value in the modern sense.

It should be sufficiently obvious from this that just as the character of art in Egypt differed from that of modern art, so also did the function of the artist as we know it, and that the appearance of sculpture must have been quite differently conditioned. A creative personality such as Phidias or Michelangelo, which can conceive, modify, and carry out a work entirely from a desire for artistic creation, was unthinkable in ancient Egypt. Certainly a creative artist is concealed behind the anonymity of most Egyptian works of art, for every genuine work of art owes its inception to the creative endeavour of an individual ; but his identity is never betrayed. Occasionally a sculptor of a relief allows a quite subordinate image of himself to appear on a tomb, or he may refer proudly to his achievement in the inscription, but he never shows by a signature that the work is his own spiritual conception.

Corresponding to this anonymity on the part of the artist is a similar anonymity in the art itself, which, as we think, excludes portrait-sculpture on the lines which are familiar from the art of other countries. It is not my purpose here to penetrate the inner significance of Egyptian figures in the round ; for that, reference should be made to the far too little known work of Heinrich Schäfer, *Von ägyptischer Kunst* (sculpture is treated in the 6th chapter of the 3rd edition), which unfortunately has not yet been translated into English. Their figures in the round are very closely connected with relief ; we may say that such work originated as three-dimensional drawing. For statues were not, as with us, first formed freely out of clay, but, as countless models show us, the outlines were first drawn on the four sides of the surface to be worked, and from those outlines the artist cut into the block to shape his model. It was therefore a question of uniform working from outside to inside, so that every Egyptian figure is, so to speak, enclosed by an invisible, oblong frame, which prevents free movement in any desired direction. This means more than the usual implication of the term ' frontality ', and it applies not only to individual figures, but to whole groups as well. A Borghesi warrior would be just as impossible in terms of Egyptian art as the Laocoon group. This method obtained also to some extent in archaic Greek sculpture ; and the great artistic achievement of the Greeks was that in place of it they substituted a figure which was directed outwards from an inner central point, and whose movement was therefore



COLOSSUS OF PRINCE HEMIUN, FROM GIZA; 4TH DYNASTY, c. 2700 B.C.  
*Pelizaeus-Museum, Hildesheim*

PLATE II



THE DWARF SENEb, WITH FAMILY, FROM GIZA, 6TH DYNASTY, c. 2300 B.C.  
*Cairo*



PLATE III

THE SCRIBE; 5TH DYNASTY, c. 2500 B.C.

*The Louvre*



PLATE IV



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HEAD OF SESOSTRIS III; 12TH DYNASTY, c. 1880 B.C.  
*Berlin*



PLATE V

AMENEMHAT III, 12TH DYNASTY, c. 1830 B.C.  
*Copenhagen, Ny Carlsberg Glyptothek*

PLATE VI



1. STATUETTE OF A NUBIAN  
(IRIGADIGANEN)  
25th DYNASTY c. 700 B.C.  
*Cairo*

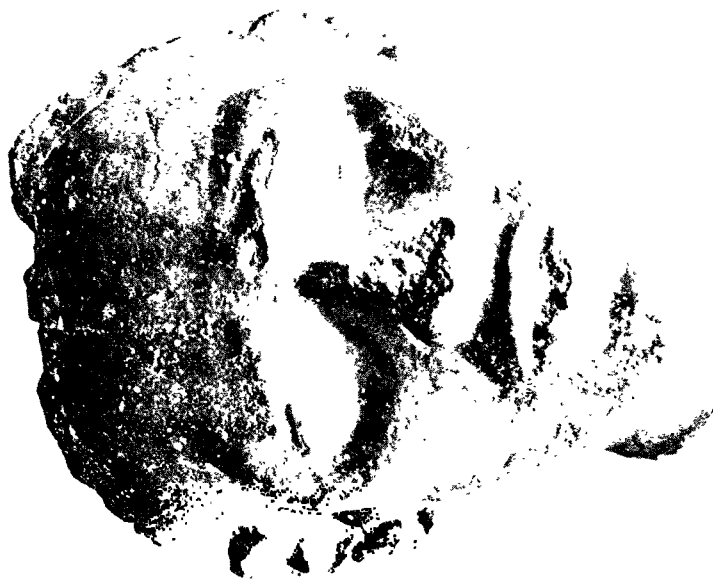


2. AMENOPHIS IV. KARNAK; 18th DYNASTY  
c. 1370 B.C.  
*Cairo*

PLATE VII



PLASTER MASK OF A WOMAN, FROM AMARNA, 18th DYNASTY, c. 1360 B.C.  
*Berlin*



PLASTER MASK OF A MAN, FROM AMARNA; 18th DYNASTY  
c. 1360 B.C.  
*Berlin*

PLATE VIII



PRIEST'S HEAD (THE 'GREEN HEAD'), 30TH DYNASTY, c. 350 B.C.  
*Berlin*

## EGYPTIAN PORTRAIT-SCULPTURE

free. However much we may admire Egyptian art, we cannot deny that this made their work far superior to that of the Egyptians, and as a result of the pervasion of classical Greek influence throughout all departments of art, the bridges connecting us with Egyptian artistic principles were once for all broken down. This fact must always be kept in mind, for it explains why, for us, Egyptian art always maintains its frigid reserve and distinctiveness.

In considering the countless human figures in Egyptian sculpture, we must distinguish true masterpieces from indifferent productions, which are much more numerous. Here we can only treat of the finest productions in an attempt to define how far the Egyptians created portrait-sculpture in the modern sense of the term. By 'portrait-sculpture' must be understood every human figure which, in its general form and especially in its facial features, represents as faithfully as possible not only the external appearance of the original but also the essential inner characteristics, the soul as one may say, of his personality. Such a demand, proceeding as it does from our modern aesthetic sense, cannot be completely met, as must now be clear, just because it runs counter to the anonymity characteristic of Egyptian art. It would therefore seem unreasonable to make such a demand; yet, on the other hand, it must be strongly emphasized that the non-fulfilment or, as we shall presently see, the incomplete fulfilment of that demand ought in no way to be accounted a weakness of Egyptian art, for there are certain unwritten laws which absolutely forbade it.

Let us consider the body first of all. It is a law of Egyptian sculptors to represent only healthy bodies in the full elasticity of youth, that is, the bodily ideal of their art, moulded according to the principles enunciated above. Therefore, most Egyptian bodies look very similar, and it would be a tedious business for us if the majority of our statues from ancient Egypt were headless. The conception of the 'torso' as an independently significant artistic structure is foreign to Egyptian art, and it is noteworthy that the two exceptional cases in which a modern finds pleasure in contemplating an Egyptian torso occur in a sphere where portrait-sculpture was also possible—the royal sculptures of the Middle Kingdom<sup>2</sup> and the art of Amarna.<sup>3</sup> It is only very rarely that any deviation from the normal occurs in such statues as have been preserved unmutated, as for instance in the Old

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<sup>2</sup> Torso of Sesostri I from Tanis (Evers, *Staat aus dem Stein*, I, plate 39).

<sup>3</sup> Torsos of princesses in University College, London (Catalogue of the Burlington Fine Arts Club, 1922, plate 9).

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Kingdom we sometimes find a dwarf<sup>4</sup> or a hunchback;<sup>5</sup> this only happens with figures of menials, quite subordinate to the main theme, where the laws of art might sometimes be violated even in relief. Only in the rarest cases does the body help to further the artist's object of making his work approximate to an exact portrait of the original: among such I would class the Colossus of Prince Hemion (PLATE I), which represents the ideal, according to Egyptian taste, of the well-to-do old man, and also the dwarf Seneb in his family group, where the conjunction of the great, intelligent head with the dwarfish body gives us a vivid picture of his personality. There might be one or two more examples of this kind—they are again found occasionally in the art of Amarna; but as a general rule we may say that the body by itself has no connexion with realistic portraiture.

Before turning to the treatment of the head, we must consider a typically Egyptian device which for the Egyptians at any rate often replaced our desire for realism in portraiture: I mean the superscription of the name. The mere fact that the title and names of the figure represented were inscribed in hieroglyphic on his chair or pedestal, made, for the Egyptians, a definite person of him, even if his actual appearance was entirely different. This is difficult for us to realize, because we have lost all consciousness of the magic power of names. But that it had great meaning to the Egyptians, even in the enlightened New Empire, is evident from the countless usurpations of royal statues by later rulers. One only had to change the name in the superscription, and at once the figure was no longer Sesostris from the Middle Kingdom but Ramses from the New Empire, 600 years younger! It is but seldom that any noticeable attempt was made, otherwise than by changing the name, to alter the style of a figure to that of its contemporary period—e.g., in a 12th Dynasty statue in Berlin of Amenemhat III appropriated by Merenptah (19th Dynasty).<sup>6</sup> This significance of the name on the statue meant so much to the Egyptians that their sculptors had no need to attempt, as would a modern, what is to us the vital problem of the actual portrait.

As Schäfer once showed, in a paper on portraiture,\* the Egyptian sculptors in general never advanced beyond a portrait which might be that of anyone of the period. The heads of the Old Kingdom have a

<sup>4</sup> Capart, *Memphis*, fig. 341.

<sup>5</sup> *Ibid.*, fig. 335.

<sup>6</sup> H. Fechtmeier, *Die Plastik der Ägypter*, 1914, p. 52-3.

\* A new and enlarged edition of this appeared, when my present paper was already written; H. Schäfer, *Das altägyptische Bildnis* (Leipzig. Aeg. Stud. 5), Glückstadt 1936.

## EGYPTIAN PORTRAIT-SCULPTURE

certain uniformity of appearance ; it is possible to make subdivisions for the principal dynasties (3rd–6th), and thus to work out a style of portraiture conditioned by period, but no more ; and the same is true of the other main periods, the Middle Kingdom, the New Empire, and the late epoch. This fact is in agreement with my previous remarks on how plastic art began. For an Egyptian, the way led from the outside inwards, and the anonymity of the artist was associated with a corresponding anonymity in the personage depicted. According to Egyptian ideas, only the name-inscription, likewise an external addition, imparts personality and individuality to a statue. When modern authorities attempt to infer the life-age of an Egyptian figure from his facial appearance, they are attempting what the art of Egypt forbids them to do. A long dispute once arose over the two statues in Cairo known, from the name-inscription, to represent Ranofer (5th Dynasty) : the one was thought to be the youthful and the other the aged Ranofer. Recently a brilliant piece of research was carried out by Engelbach : by making a plaster cast of the wig on the one figure and fitting it on to the bald head of the other, he showed that both faces under the same wig are practically identical.<sup>7</sup> I myself am convinced that both show, not the actual face of the individual Ranofer, but only a fully-developed representation of the facial ideal of the 5th Dynasty. Still, even after this striking experiment, both faces will continue to count among the supreme achievements of Egyptian plastic. To sum up, if I were asked where in the Old Kingdom I can detect real portrait-sculpture, in our sense of the term as defined above, my answer, heretical though it may sound, is—nowhere ! But I am willing to make this concession, that the sculptures of Prince Hemion (PLATE I) in the 4th Dynasty, and of the dwarf Seneb (PLATE II) in the 6th, as well as the justly famous Scribe of the Louvre (PLATE III) in the 5th, approximate most nearly to our modern requirements.

A similar negative reply is necessary, to my mind, when we come to the New Empire sculpture of the 18th and 19th Dynasties. Without going into detail, let me just emphasize that the dispute as to whether a royal figure represents Thutmosis III or his half-sister Hatshepsut appears to me basically futile. The representations of this great ruler, often beautiful, are again only types of the ideal ruler of the period in question. The same holds good of the discussion concerning the portrait of Ikhnaton and his successors, for even the art of Amarna, after its initial impulse, produced an ideal royal type.

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<sup>7</sup> *Mélanges Maspero*, I, p. 101 and plate.



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True portraits, according to our definition, were only achieved by the Egyptians when sculpture as a whole was on the point of bursting the fetters of its strict laws ; this occurred only three times in the long course of the many thousand years of its history—at the zenith of the Middle Kingdom, in the Amarna period, and about the middle of the first millennium B.C., that is, in the late epoch. In these periods, sculptors were genuinely concerned to bring out the inner human personality of their originals, and to give a faithful portrayal of men with the chief points, good or bad, of their character. In this way H. G. Evers, a modern historian of art, in his penetrating account of the sculpture of the Middle Kingdom, has been able with certainty to ascribe certain unnamed royal heads to the two great rulers Sesostris III (PLATE IV) and Amenemhat III (PLATE V).<sup>8</sup> Even if the external features of the countless royal heads of this period show no correspondence with them, the strong, energetic, masterful features of the one and the resigned, earnest, thoughtful characteristics of the other are easily recognizable here.

The religious movements of the Amarna period are too well known to need any fresh exposition. At the beginning of this short but important epoch, there was a rebellion against tradition ; thus the ugly statues of Amenophis IV from Karnak (PLATE VI, 2) may be regarded as genuine portrait-sculpture—in fact, we can speak here of an actual excess of personality in sculptural representation. The royal heads from the city of Amarna itself show much greater restraint. Here as nowhere else we get a glimpse of the conditions imposed by time and place, and we see artistic creation alive and growing. The German excavations before the war and those of the English after it have provided us with inexhaustible finds. But these artists and most of their works remain anonymous ; and it must always be emphasized that Thutmosis, so often spoken of as possessor of the most famous workshop, is nowhere indicated by a signature, and his name occurs only quite incidentally on an unimportant object found on the workshop site. We have no right therefore to venerate a ‘ Master ’ Thutmosis as the sculptor of the Nefertiti busts. This wonderful series of masterpieces,—the lovely head of the Queen<sup>9</sup> discovered by Pendlebury, and many others—present difficult problems in connexion with realistic portraiture, as do

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<sup>8</sup> *op. cit.*, II, p. 108 ff.

<sup>9</sup> *Journal of Egyptian Archaeology*, XIX, plate 12 (unfortunately not taken from a good angle.)

## EGYPTIAN PORTRAIT-SCULPTURE

also the numerous heads of princesses. Here in the portraiture of the Queen we may claim to detect differences in age. Definite portraits such as completely fulfil our demands are to be seen in the plaster masks now in the Berlin Museum, taken for the most part from the living face. If we examine this group of heads, and in particular those of private individuals (PLATE VII), we are constantly surprised to see how completely they differ from all other Egyptian plastic. The late Dr H. R. Hall attempted to explain this un-Egyptian quality by suggesting that these are the heads of foreigners, not Egyptians. But is it really probable that we should have found only the heads of non-Egyptians at Amarna? Certainly, foreign blood may often have flowed in the veins of the men of that period, but for all that they were Egyptians; and I would rather explain the difference by assuming that in the plaster masks the artist has for once lifted the veil drawn everywhere else over Egyptian plastic art by its rigid governing principles. Here for once we really have actual persons before us, as they lived at the court of Ikhnaton, that is, we have portrait-sculpture in the truest sense. And I should like to believe, although of course it cannot be proved, that the heads of the stone statues made from those masks would not have revealed any trace of this living reality; in their case, that same veil would certainly have hidden from us much individual detail.

Lastly, out of the mass of sculpture of the late epoch a few heads emerge which we may confidently acclaim as portrait-sculpture. Although these works belong to an age bordering closely on the Greek, they have nevertheless been comparatively neglected both historically and from the point of view of the history of art; therefore a few examples must suffice. The art of the first millennium B.C. in no way exhausted itself in the copying of earlier works. One and the same man, Mentuemhet, who lived in Thebes about 700 B.C., has left statues of himself which represent him in the style of the early New Empire,<sup>10</sup> in the polished style of the late epoch,<sup>11</sup> and with complete realism.<sup>12</sup> It was just at this period that a marked realism occasionally appears in sculpture: a particularly drastic example is to be seen in the statuette of a Nubian in Cairo (PLATE VI, 1), which leaves nothing to be desired as a piece of realistic portraiture. We cannot yet clearly explain this trend towards realism in the late epoch. It reaches its extreme limit

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<sup>10</sup> Schäfer-Andrae, *Kunst des alten Orients (Propyläenkunstgeschichte, II)* p. 433.

<sup>11</sup> Legrain, *Statues et Statuettes*, III, plates 46-7, nos. 42237-8.

<sup>12</sup> *Ibid.*, plate 44-5, no. 42236.

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in the so-called 'Green Head' in Berlin (PLATE VIII) and kindred works, which in their unique inner power of expression are certainly not purely Egyptian, but stand on the threshold of the period when the Greek artistic spirit found its way into Egypt, before which the now ageing Egyptian art gradually gave way.

If we could to-day confront an ancient Egyptian, say of the period of Thutmosis III, with a selection of the best works of Egyptian art of all periods, and ask him his opinion as an artist, he would most probably condemn just those three groups to which I have here alluded as embodying real portrait-sculpture, on the ground that they were foreign to his spirit, over-accentuated, and abominably 'modernising'; and he would probably point to the Ranofer of the Old Kingdom or to a statue of Thutmosis III as examples of genuine, sound Egyptian art. Anyone who feels that he has to some extent entered into the world of Egyptian art will hold the same view. I would emphasize again the warning with which I began this article—that we should beware of measuring the art of Egypt by our own standards. It remains incomprehensibly great and deserving of honour, even if it cannot fulfil all our expectations in the sphere of portrait-sculpture.

# The 'Dolmens' of Southern Britain

by GLYN DANIEL

**O**BSERVATION not guided by ideas, even hypothetical ideas', says Professor Wolf, 'is blind; just as ideas not tested by observation are empty'.<sup>1</sup> The student of megalithic monuments has as constantly to regret that early antiquaries were not more aware of the necessity of making accurate plans and of recording morphological and constructional details of the monuments—many alas, now ruined or vanished—which they visited, as he has to deplore their delight in formulating theories which they never tested by field-survey; but he has also to cope with evils more dangerous even than these, namely observation so dominated by false or imprudent hypotheses that it results in a distorted vision worse by far than mere blind observation or empty ideas.<sup>2</sup> Some of these hypotheses—like the Druids, the Ancient Egyptians, the metal-working Prospectors, the megalithic race, solstitial and clock-star alignments,—to mention only a few, have been disproved by research and flourish today only among perverse and illogical archaeologists. Others—such as the concept of the Montelius dolmen here examined in its relation to southern Britain<sup>3</sup>—while just as inadequate and inaccurate, are the common-places of modern text-books.

The etymology of the word 'dolmen' is disputed. The word is apparently not known in that form before 1807 and seems to be a variant of a Low Breton word *dolmin* or *dolmine*.<sup>4</sup> Corret observed that this word was used by the peasants of the Morbihan to describe certain megalithic burial-chambers near Locmariaquer, and he adopted it to

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<sup>1</sup> A. Wolf, *Essentials of Scientific Method*, 1928, p. 23.

<sup>2</sup> e.g., the theory that some burial-chambers are built on low artificial hills, has led some archaeologists—even Montelius himself—to record *beneath* chambers such low mounds which have no objective existence. See Crawford, *Long Barrows of the Cotswolds*, pp. 148–9.

<sup>3</sup> 'Southern Britain' here means Wales, and England south of Mersey and Humber.

<sup>4</sup> See Murray, *N.E.D.*, s.v. Dolmen; S. Reinach, *Revue Archéologique*, 1893, series 3, xxii, 36–7; Déchelette, *Manuel d'Archéologie*, I, 374–5.

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designate all such monuments wherever found.<sup>5</sup> Baron Bonstetten's classic definition<sup>6</sup> is a development of Corret's suggestion; and throughout the nineteenth century the term is widely used in this sense, as, for instance by Bertrand, Barnwell, W. C. Lukis, Borlase, and Gowland. A later French usage distinguished two kinds of burial-chambers: (a) the dolmen, and (b) the *allée couverte*.<sup>7</sup> At first the term *allée couverte* was indiscriminately applied to passage-graves, to the approaching passage of passage-graves, and to gallery-graves; but gradually it came to mean only gallery-graves, and the terms 'dolmen à galerie' and 'galerie d'accès' were used for passage-graves and their approaching passages respectively.<sup>8</sup> Thus it is to denote all burial-chambers except gallery-graves that Reinach, Déchelette, and le Rouzic use the word 'dolmen'. A further restriction in meaning was implicit in Montelius's classification, for he gave specific distinction to the dolmen à galerie, and used the term 'dolmen' to denote simple single-chambered megalithic tombs. Thus it will be seen that what may for convenience be called the Bonstetten dolmen, the Reinach dolmen, and the Montelius dolmen, differ fundamentally.<sup>9</sup> During the last fifty or sixty years the concept of the Montelius dolmen has dominated almost all morphological analysis of megaliths in the British Isles, in Germany, and in Scandinavia.

Oscar Montelius classified the megalithic graves of Scandinavia first into four classes, and later into eight; but essentially his scheme distinguished three main types: (1) the dolmen, (2) the passage-grave,

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<sup>5</sup> Théophile Malo de la Tour d'Auvergne Corret, *Origines Gauloises* (Paris, 1796), p. 24.

<sup>6</sup> In his *Essai sur les Dolmens* (Geneva, 1865), p. 3. This is a rare book and the definition is worth quoting: 'Le nom de dolmen s'applique à tout monument en pierre, couvert ou non couvert de terre, d'une dimension suffisante pour contenir plusieurs tombes, et formé d'un nombre variable de blocs bruts (les tables) soutenus horizontalement au-dessus du niveau du sol par plus de deux supports'.

<sup>7</sup> The word is first used by Arcisse de Caumont, *Bulletin monumental*, 1863, p. 582. See also Cazalis de Fondouce, *Allées couvertes*, 1873.

<sup>8</sup> The term passage-grave is used throughout this article to connote tombs such as Cunha Baixa, Kercado, New Grange, Falköping, etc.; the term gallery-grave tombs such as La Halliade, Kerlescant, Browndod, Carn Ban (Arran), etc. It is perhaps worth emphasizing here that these terms are technical and not descriptive; obviously in common parlance there is little difference between passages and galleries.

<sup>9</sup> Dolmens have been defined in ways other than these three primary ones here discussed. A common usage is to describe all free-standing chambers as dolmens. See for example, Windle, *Remains of the Prehistoric Age in England*, pp. 174-5.

## THE 'DOLMENS' OF SOUTHERN BRITAIN

(3) the gallery-grave of various forms.<sup>10</sup> The Montelius dolmen is a rectangular, polygonal or almost circular tomb, walled with orthostats, and roofed with one capstone. In plan it is entirely closed or has one side open, and in some of this latter type two low stones form a small passage outside the entrance. It stands either quite free or in the centre of a low rectangular or round mound, which never reaches up to the level of the capstone. Montelius's classification is not merely morphological: it implies a typological sequence and a relative chronology, for he held that the passage-grave evolved out of the dolmen and in turn gave rise to gallery-graves and cists. The following quotation sums up his argument: 'Les dolmens proprement-dits—c'est à dire les dolmens sans galerie—sont, à mon avis, les tombeaux les plus anciens que nous connaissons actuellement en Suède. La sepulture à galerie est une forme plus moderne, qui s'est développée du dolmen dans le Nord de l'Europe'.<sup>11</sup> The implications of the Montelian theory of the dolmen are fivefold: (1) that it is a specific class of burial-chamber, (2) that it is not found incorporated in a barrow, (3) that it is earlier than other forms of megalithic graves, (4) that the passage-graves evolved out of it, and (5) that this evolution took place in Northern Europe. The last two points need no discussion here. The northern origin of the passage-grave has been frequently disproved, and Montelius himself in his later work postulated two invasions of northwestern Europe, the one associated with dolmens, the other with passage-graves, and he derived the passage-graves of the Western Mediterranean from the *tholoi* of the Eastern Mediterranean, particularly those of the Mesará in Crete. But he still maintained the first three of the implications listed above, which may be called the three key-points in the theory of the Montelian dolmen.

The influence of this classification has been tremendous; but it has unfortunately led prehistorians to classify megalithic monuments not on the basis of their objective morphology, but in so far as they fit in with the Montelian classification. The Iberian peninsula affords the clearest example of this process. The early classifications of Iberian burial-chambers<sup>12</sup> are almost entirely applications of the Scandinavian

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<sup>10</sup> A good summary of his earlier classification will be found in *Compte rendu, Cong. inter. d'Anthr. et d'Arch. Préh.*, (Stockholm, 1876), p. 152 ff., 'Sur les tombeaux et la topographie de la Suède pendant l'âge de la Pierre'. His later classification is developed in 'Orienten och Europa', *Antiqvarisk Tidskrift for Sverige* (Stockholm, 1905), XIII, 183.

<sup>11</sup> *op. cit.*, 'Sur les tombeaux . . .', p. 162.

<sup>12</sup> As, for instance, those by Leeds, Obermaier, and Bosch-Gimpera.

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sequence to that area ; it is only in the last ten years that Forde, Fleure, and Peake have described and classified the Spanish and Portuguese material as it exists. The burial-chambers of the British Isles have been similarly forced into the divisions of the Montelius system. Mainly through the work of Anderson and Thurnam the chambered cairns of Scotland and the long barrows of southern England have long been well known, but it has been customary to dismiss the remainder of the British material under the vague and convenient heading of 'dolmens'. According to the old text-books,<sup>13</sup> Ireland was particularly rich in dolmens, they were plentiful in Cornwall and Wales, some were to be found in Gloucestershire and Wiltshire, and a passing reference was always made to Kits Coty as a typical dolmen in eastern England. Nor is this picture out of date, for it is repeated in most modern books and papers.<sup>14</sup> One cannot do better than quote the following from an official handbook published in 1932, 'Chambers conforming to the usual definition of a dolmen are found in the West of England (especially Cornwall and Wiltshire), Wales, and Ireland'.<sup>15</sup> As Estyn Evans and Miss Gaffikin have wisely remarked, 'The dolmen myth dies hard'.<sup>16</sup>

FIG. 1 shows the distribution of burial-chambers in southern Britain.<sup>17</sup> The work of Thurnam and Crawford enables us to distinguish a group of chambered long barrows which may be conveniently described as the Severn-Cotswold group. The distribution of this group is mapped in FIG. 2, and includes south Glamorgan, Brecknockshire, Gloucestershire, north Wiltshire, west Oxfordshire and Berkshire, and Somerset. Many of the chambers in this group are small rectangular or polygonal structures,<sup>18</sup> and, stripped of their long barrows, would be ideal Montelius dolmens. Within the region covered by the Severn-Cotswold group there do occur such chambers which are today free-standing. These free-standing chambers are distinguished on

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<sup>13</sup> See Fergusson, Peet, Rice Holmes, etc. Montelius gives a characteristic account in *Orienten och Europa*, p. 25.

<sup>14</sup> As, for example, Childe, *Dawn of European Civilization*, p. 287: 'Dolmens are common in Ireland, Cornwall, and Wales, and there are some on the coasts (*sic*) of Devon, Dorset, and Wiltshire, and perhaps one in Kent'.

<sup>15</sup> *A Handbook of the Prehistoric Archaeology of Britain* (Oxford, 1932), p. 25. (Produced in connection with the First International Congress of Prehist. and Protohist. Sciences, London, 1932). Note again the emphasis on Wiltshire.

<sup>16</sup> *Irish Naturalists' Journal*, July 1935, v, 5.

<sup>17</sup> Based on a field survey made during 1933-36. I take this opportunity of thanking Mr W. F. Grimes for his invaluable assistance with the Welsh material.

<sup>18</sup> e.g. Randwick, Tinkinswood, Manton Down, Gatcombe Lodge.

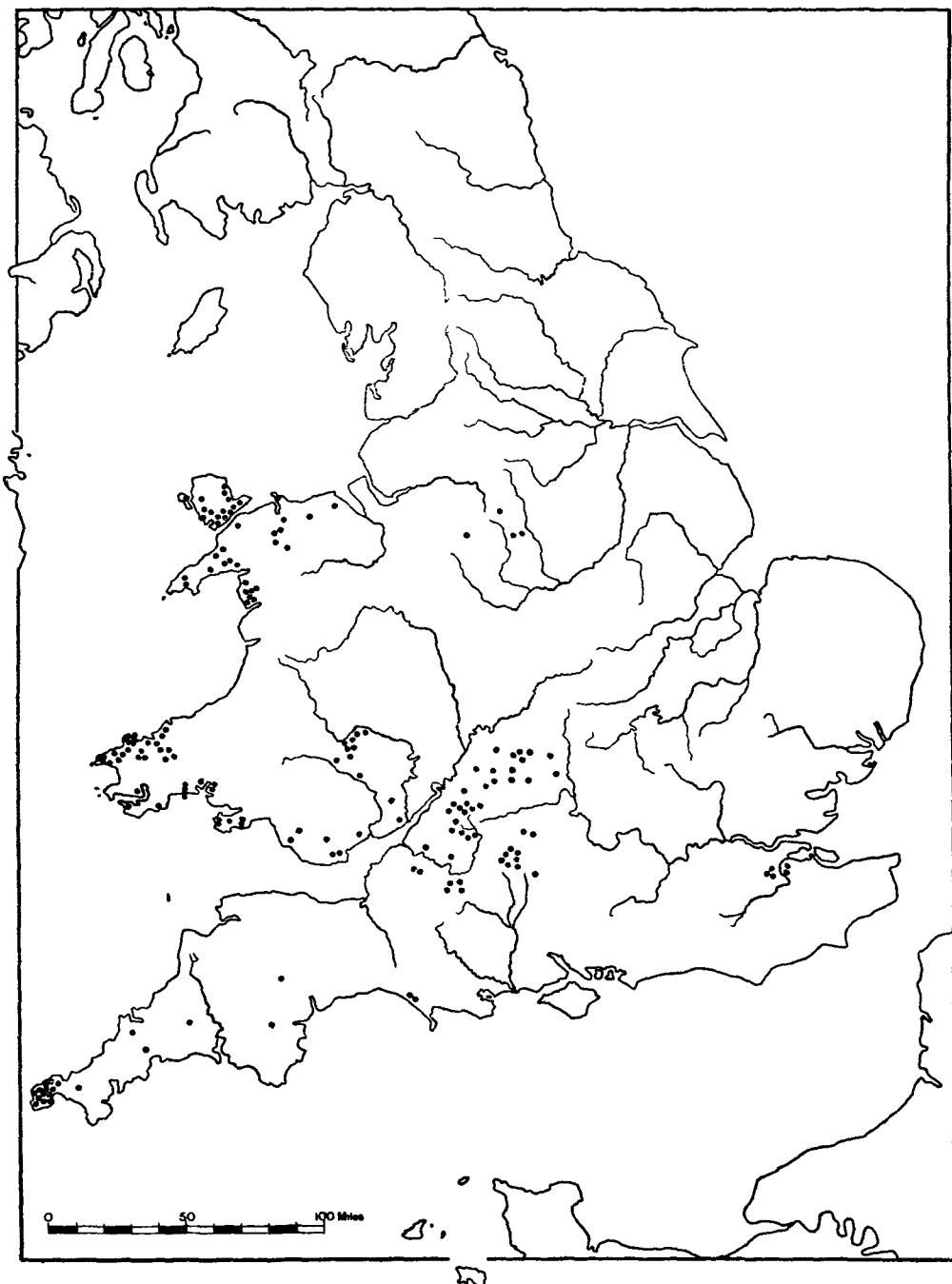


FIG. 1. DISTRIBUTION-MAP OF THE BURIAL-CHAMBERS IN SOUTHERN BRITAIN  
(ISLES OF SCILLY NOT SHOWN)



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FIG. 2 ; good examples of them are Gwernvale near Crickhowell, Pentyrch in the Vale of Glamorgan, the Devil's Den in Clatford Bottom, the Hoar Stone, Enstone, and the Whispering Knights—both in Oxfordshire. It will readily be seen how very few examples there are,<sup>19</sup> and that their distribution is coincident with that of the chambered long barrows, *i.e.*, they do not occur in parts of Gloucestershire or Wiltshire or Glamorgan in which there are no chambered barrows. Despite this however, they have frequently been claimed to belong to a different and earlier class of megalithic tomb than the typical Severn-Cotswold chambered long barrow—in fact, that they are typical Montelius dolmens. Crawford however has argued that these 'dolmens' marked on FIG. 2 are no more than the denuded remains of chambered long barrows.<sup>20</sup> The present writer is in complete agreement with this thesis ; it is quite unjustifiable to speak of 'dolmens' as separate morphological entities in the area covered by the Severn-Cotswold group.

Kits Coty and Coldrum in Kent were favourite text-book examples of Montelius dolmens. Crawford has however drawn attention to the remains of the long barrow at Kits Coty, and suggested that this 'dolmen' may be no more than the false entrance or 'dummy portal' of a long barrow.<sup>21</sup> He suggests moreover that the Medway group may be regarded as an eastward extension of the Severn-Cotswold group, in which case the remarks already made on the dolmens of that group would be equally applicable here. I think it more likely however that Kits Coty is the remains of a small rectangular chamber of the Coldrum type than of a false portal. The morphological affinities of the Medway group with certain burial-chambers in the Netherlands have been frequently pointed out ;<sup>22</sup> the geographical isolation of the group from the Severn-Cotswold group, and its concentration on the

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<sup>19</sup> The Devil's Den in Clatford Bottom is the only example in Wiltshire existing at present and Goddard, Crawford, and Passmore have independently recorded the remains of a long barrow here.

<sup>20</sup> *Ordnance Survey, Prof. Papers*, N.S., no. 6, p. 4 ; *Long Barrows of the Cotswolds*, p. 21 ; *Map of Neolithic Wessex*, p. 6. Some have suggested alternatively that these free-standing chambers here discussed were covered with round mounds. Crawford has dealt with this suggestion. It would be indeed curious if all the chambered round barrows in this region (with the possible exception of Greenwell 217) had been denuded while so many of the chambered long barrows remained intact.

<sup>21</sup> *Ordnance Survey Prof. Papers*, N.S., no. 8, p. 3.

<sup>22</sup> Fergusson first suggested a north-European origin for the Medway megaliths. See also John Ward, *Arch. Camb.* 1916, p. 242 ; Fleure and Peake, *J.R.A.I.*, LX, 63.

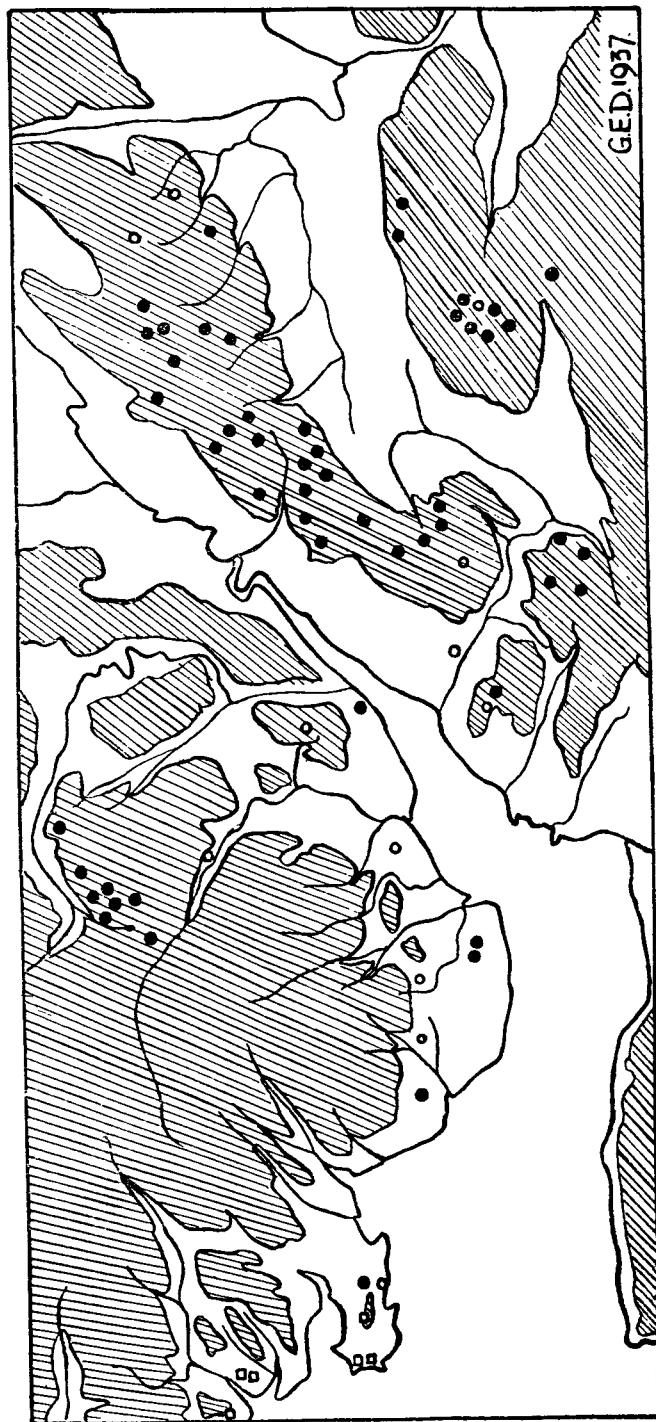


FIG. 2. SKETCH-MAP SHOWING THE DISTRIBUTION OF THE SEVERN-COTSWOLD GROUP  
 Solid dots=chambered long barrows. Open dots=free-standing chambers. Squares=chambers belonging to other morphological groups

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Medway valley are all in favour of a Dutch origin. But whatever may be the origins of the group, it is clear that again we have no dolmens here ; Kits Coty, Coldrum and Addington are long barrows with chambers at their eastern ends, and it seems probable that Lower Kits Coty and the Chestnuts at Addington are remains of similar structures.<sup>23</sup>

A third group of burial-chambers exists in southern Britain, which may be called the Scilly group, and which is characterized by small gallery-graves enclosed in round mounds. Dr William Borlase first recognized this type in the eighteenth century, and it has recently been studied in detail by Hencken.<sup>24</sup> This group is concentrated in the Isles of Scilly, where over 40 typical examples still exist, but a few good examples such as Pennance, Treen (two), and Brane in Sancreed, exist on the mainland in Penwith.<sup>25</sup>

There are just a few passage-graves in North Wales. Bryn Celli Ddu in Anglesey is well known, while ten miles west of it Barclodiad y Gawres at Treacastle Bay reproduces fairly accurately the cruciform plan characteristic of the central Irish passage-graves. A 17th-century drawing of Ystum-cegid-isaf in Llein, and the accompanying description, strongly suggests that it was originally a passage-grave.<sup>26</sup> These are the only undoubted passage-graves (*sens. stric.*) in southern Britain. Hemp suggests that Plas Newydd may be another passage-grave,<sup>27</sup> but the smaller of the two chambers, which he claims as an ante-chamber, may equally well be a side-chamber as at Rondossec III, near Plouharnel (Morbihan). There are also a few typical gallery-graves in England and Wales, apart from the groups already mentioned. Trefignath on Holy Island is a good example and is segmented ; while Hen Drefor and Dindryfol on Anglesey are almost certainly similar monuments, as Grimes suggests.<sup>28</sup> The Bridestones near Congleton in Cheshire is another typical gallery-grave.

So far we have distinguished five morphological groups among the

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<sup>23</sup> But Piggott thinks the Chestnuts site may have had a round barrow (*P.P.S.*, 1935, p. 122). There seems to me little evidence to support this suggestion.

<sup>24</sup> *Archaeology of Cornwall and Scilly*, 1932 ; *Ant. Journal*, 1933, p. 13 ff.

<sup>25</sup> Tregaseal, Chapel Carn Brea, Tregiffean Vean, and perhaps Carn Gluze probably represent degenerate gallery-graves of the Scilly type.

<sup>26</sup> Richard Farrington, *Snowdonia Druidica*, 1769, opp. p. 175. This is an unpublished MS. in the National Library of Wales, and I am indebted to Mr W. F. Grimes for drawing my attention to it.

<sup>27</sup> *Archaeologia*, 1935, LXXXV, 253.

<sup>28</sup> *P.P.S.*, 1936, pp. 119-120.

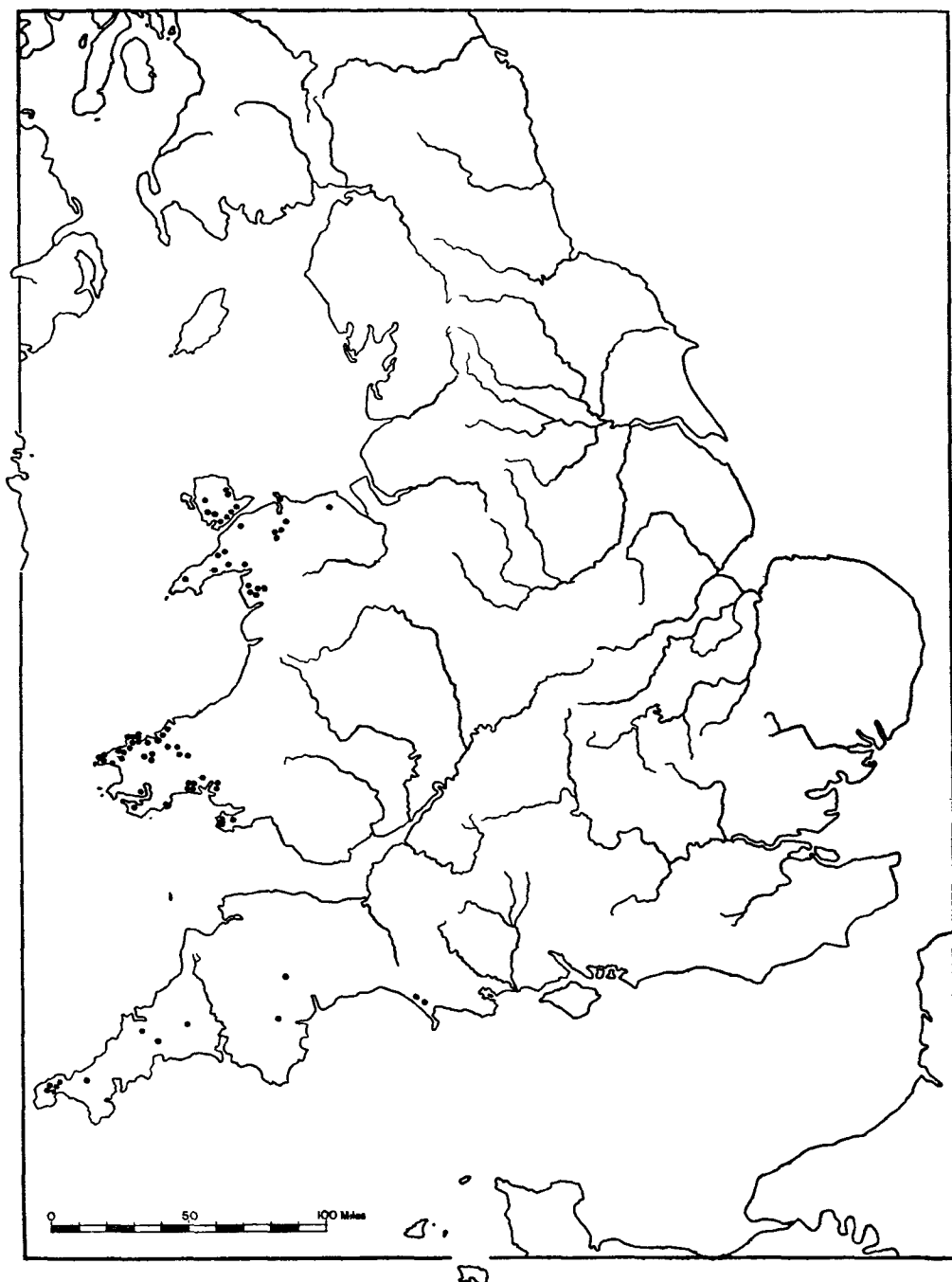


FIG. 3. DISTRIBUTION-MAP OF SITES BELONGING TO THE LONGHOUSE, ZENNOR, AND THE LONGHOUSE-ZENNOR DERIVATIVE GROUPS

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burial-chambers of England and Wales : (1) the Severn-Cotswold group, (2) the Medway group, (3) the Scilly group, (4) the passage-graves of northwest Wales, and (5) the gallery-graves in Anglesey and Cheshire. It must be emphasized that this paper is not a constructive morphological analysis of the burial-chambers in southern Britain, but merely a criticism of the application of the Montelius dolmen theory to the megalithic tombs of that area. It is thus impossible to deal here with the fascinating problems presented by the morphology of sites such as Pant y Saer, Mininglow South, Greenlow, Five Wells and West Kennet, or with the group of North Welsh chambered long barrows such as Rhiw in Lleyn, the two Carneddau Hengwm in Merionethshire, Tyddyn Bleiddyn in Denbighshire and Capel Garmon in the Conway valley—all of which have, like the Severn-Cotswold sites in Thurnam's class II,<sup>29</sup> lost the importance of the broad end of the long barrow as a normal position for the chamber. These are all exceptional sites, the result probably of regional development in England and Wales, and they do not affect the primary issues here discussed. FIG. 3 is redrawn from FIG. 1 with the omission of the five groups distinguished above and of the exceptional sites mentioned. The superficial student of burial-chambers will confidently label all the sites on this map as Montelius dolmens. Yet do they fulfil the three requirements of the Montelius definition ? Are they all of the same morphological type, and are they earlier than the monuments of the other five groups, and finally, are they all devoid of covering mounds ? These three questions must be briefly discussed.

It is possible to distinguish two morphological types among the sites mapped in FIG. 3, which may for convenience of reference be called the Longhouse and Zennor types. The first type consists of single polygonal chambers and is of rare occurrence, the best examples being Presaddfed in Anglesey,<sup>30</sup> and Longhouse, Llanrian in north Pembrokeshire, both of which are planned in FIG. 4. Plas Newydd in Anglesey is probably, as mentioned above, a member of this group with a side-chamber to the south.<sup>31</sup> The Hanging Stone near Burton in south

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<sup>29</sup> *Archaeologia*, XLII (1), 215 ff.

<sup>30</sup> C. A. Raleigh Radford has suggested to me that the group of megaliths to the north of the fine chamber at Presaddfed may perhaps be the remains of a passage leading south to the chamber. I am inclined however to agree with Baynes (*Trans. Hon. Soc. Cymmrodorion*, 1910-1911, pp. 21-22) that they probably are the remains of a second chamber.

<sup>31</sup> As Grimes points out (*P.P.S.*, 1936, p. 131), the stone separating the two chambers functions at present as a supporter, but there has clearly been much alteration at this site.

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Pembrokeshire is also probably of this type, as Grimes has pointed out.<sup>32</sup> The Zennor type consists of rectangular chambers and is much more

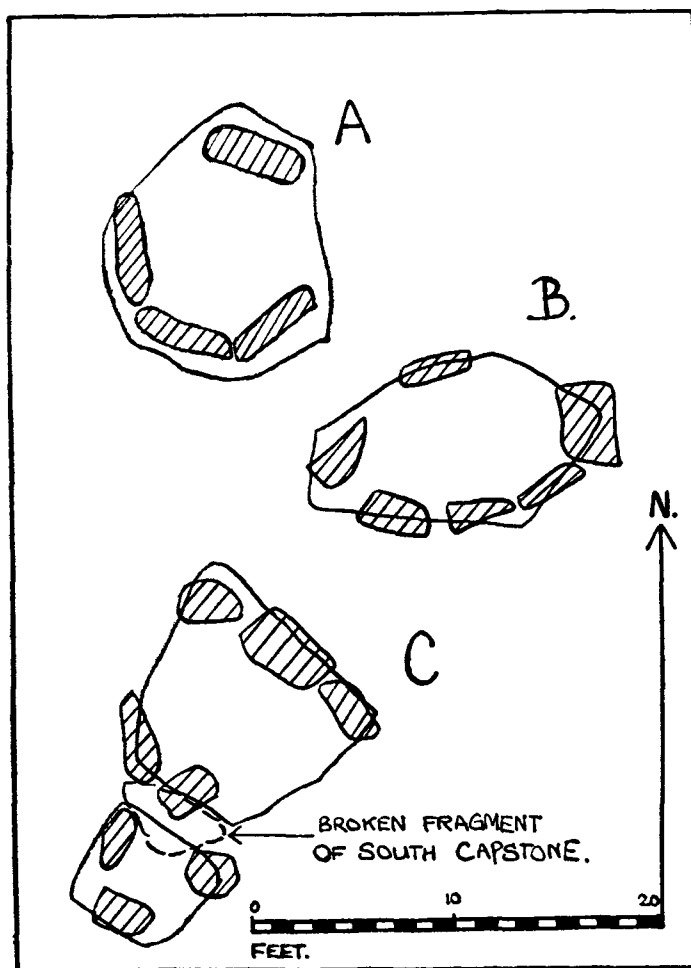


FIG. 4. TYPICAL CHAMBERS OF THE LONGHOUSE GROUP  
(A) PRESADDFED, (B) LONGHOUSE, (C) PLAS NEWYDD

widely distributed. Its distribution falls into three groups : (1) south-western England ; good examples in Cornwall are Mulfra, Chun, Trethevy, Pawton, as well as Zennor itself, while the Grey Mare and

<sup>32</sup> *ibid.*, p. 131.

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her Colts near Abbotsbury in Dorset is very typical ; (2) south-western Wales ; where Penrhiw, Treffynnon, Ebenezer (Llangynog), Penbont (Newport), and the southern of the four chambers on Pendine Head are normal rectangular chambers. The site between Newport and Dinas in north Pembrokeshire, variously referred to as Cerrig y Gof and Cerrig Atgof, consists of a number<sup>33</sup> of rectangular chambers arranged in a circle. Pentre Ifan and Carn Turne are almost certainly of this type ; (3) northwest Wales ; where Bryn yr Hen Bobl and perhaps Bodowyr in Anglesey, Four Crosses, Bachwen (Clynnog), Penarth (Clynnog), and Cefn Isaf in Lley, Gwern Einion, and the two chambers at Dyffryn in Merionethshire, and Hendre Waelod, Maes y Facrell (Llandudno) and the two chambers near Roe Wen in the Conway valley are typical examples of the Zennor type. Cist Cerrig (Treffys) near Portmadoc appears to be the end of another rectangular chamber.<sup>34</sup>

The distinction of the certain and probable examples of the Long-house and Zennor types still leaves many sites on the map (FIG. 3) and these may be classified into two groups : (1) a group confined to west Wales here referred to as the ' sub-megalithic group ' ; (2) a number of sites which are morphologically indeterminate or ambiguous. The term ' sub-megalithic ' is admittedly unsatisfactory but it is here used to designate a large number of tombs, obviously connected with the more normal burial-chambers of Wales, but which are not constructed in the usual way (*i.e.* with orthostatic walling and trabeate megalithic roof). Some of these (for example Sling (Llandegai) in Carnarvonshire, Carn Wnda and Carn Gilfach in north Pembrokeshire, two at Carn Llidi on St. David's Head, Manorbier in south Pembrokeshire, and the two on Llangyndeirne Mountain in south Carmarthenshire), conform to the ' earthfast ' type of Du Noyer, and consist of a megalithic capstone resting at one end on the ground and at the other on an orthostatic wall.<sup>35</sup> Others have extensive rock-cut elements such as Pant-y-Saer, Lligwy, and Glyn. Arthur's Stone, on Cefn Bryn in Gower, has an underpinned capstone, and in the southeastern of the two well known caves at Gop, in Flintshire, is a curious burial-chamber which utilizes the cave walls in its construction. All these chambers

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<sup>33</sup> At present certainly four and originally probably five.

<sup>34</sup> Though it may be, as W. J. Hemp has suggested to me, a false entrance or ' dummy portal '.

<sup>35</sup> For a short account with plans of the Welsh ' earthfast ' types see W. F. Grimes, *P.P.S.*, 1936, p. 132 ff.

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present peculiarities of construction rare among the normal chamber-tombs of western Europe, and they do not present any coherence in their morphology. Some approximate closely, as far as the technical limits imposed by their construction allow, to examples of the Longhouse and Zennor types. It seems probable that the sites here referred to as 'sub-megalithic' are degenerate examples of the Longhouse and Zennor types,<sup>36</sup> and that their formal degeneracy is emphasized by a parallel decay in constructional technique.

A number of sites on FIG. 3 are morphologically either indeterminate or ambiguous. Some, such as Mountain and Broomhill Burrows in Pembrokeshire or Ty Mawr in Anglesey, are so ruined that it is impossible to hazard an opinion as to their original form. Indeed some of them are so destroyed as to leave their very genuineness in dispute. Other sites again have been rebuilt and no adequate early plans exist; such are Drewsteignton, Pendarves Park, and the Hellstone near Portisham. The majority of these sites have a number of orthostats with a capstone resting on top, but the arrangement of the uprights is such that no reliable inferences can be drawn about original morphology. Good examples of this type are furnished by Mynydd Cefn Amlwch, Llech y Drybedd, Carn Llys and Lanyon. Classifications of free-standing chambers are sometimes based on the number of orthostats or capstones employed,<sup>37</sup> but there seems little purpose in such arrangements or in distinguishing such structures as 'tripod-dolmens' and 'lichavens', for these distinctions at best imply not original morphology but merely the extent of subsequent destruction. Chambers with only two or three orthostats at present can never, at least in the majority of cases, have been originally so erected. As W. C. Lukis and Barnwell used to point out, such structures could not have been functional chambers. They must surely represent partially destroyed chambers and the paucity of surviving orthostats makes their original plan ambiguous. It is impossible, for instance, to say whether typical 'tripod-dolmens' such as Mynydd Cefn Amlwch or Llech y Drybedd were originally rectangular, or polygonal, or almost circular. But it is most dangerous to assume that morphological ambiguity implies that the chambers concerned 'are of the simple form';<sup>38</sup> they are all varied

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<sup>36</sup> Or even, perhaps, of passage-graves or gallery-graves.

<sup>37</sup> Gardner-Wilkinson's is perhaps the best known. See also Macalister, *Archaeology of Ireland*, pp. 115-16.

<sup>38</sup> Grimes, *Map of South Wales showing the distribution of Long Barrows and Megaliths* Ordnance Survey, 1936, p. 12.



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in the formal evidence which they afford, and it is uncertain morphology rather than simplicity that characterizes them. It would be equally dangerous to suppose that these destroyed sites represent a distinct morphological type only persisting in decay. Crawford has suggested, as mentioned above, that the 'dolmens' of the Severn-Cotswold area are partially destroyed chambered long barrows: it is here suggested that this group of sites labelled 'morphologically indeterminate' are really partially destroyed examples of the other morphological groups already distinguished in the rest of England and Wales.

It will be seen that we suggest that the sites on FIG. 3 belong essentially to two morphological traditions, but that many monuments reveal these traditions in a degenerate and decayed form. Grimes has argued against this view in his analysis of the burial-chambers in south-west Wales;<sup>39</sup> he regards the rectangular chambers in this area—citing Penrhiw, Treffynnon, and Ebenezer (Llangynog)—as a 'purely accidental variation' of his 'simple form' such as Llech y Drybedd, Newport, and Llanboidy, a variation moreover due to the use of 'flat slabs'. While we appreciate the influence which available material ever exercises on the form of burial-chambers, this view seems untenable.<sup>40</sup> The orthostats used in building chambers of the Zennor type are frequently identical with orthostats used in chambers of the Longhouse type or in passage-graves: they are certainly no 'flatter'. Again it must be emphasized that the Penrhiw, Treffynnon and Ebenezer sites—as well as many others in Pembrokeshire—can be closely paralleled in Cornwall and in North Wales and, incidentally, in Ireland. It would be difficult to believe that these widely distributed rectangular chambers can all be explained away as accidental variations, and moreover variations of a type whose validity we here deny.

The problem of the relative age of monuments of the Longhouse, Zennor and sub-megalithic types is a more difficult one than that of their morphology. There exists no unequivocal evidence derived from associated grave-goods: we have to rely entirely on formal considerations. It must be obvious that if a normal passage-grave has its passage subsequently destroyed, the resulting structure would be indistinguishable from an example of the Longhouse type. Baynes has shown<sup>41</sup> that Bryn Celli Ddu with its passage destroyed would resemble

<sup>39</sup> Grimes, *op. cit.*, pp. 11–14.

<sup>40</sup> I have touched on some of these issues in *P.P.S.*, 1936, p. 259.

<sup>41</sup> *op. cit. supra*, p. 23 and fig. 6. It should be observed however that similarity of orientation does not necessarily support Baynes's argument.

## THE 'DOLMENS' OF SOUTHERN BRITAIN

Presaddfed. It seems to me highly probable that the Longhouse type of polygonal single chamber represents in fact partially destroyed passage-graves, and is therefore no earlier than the Bryn Celli Ddu-Barclodiad

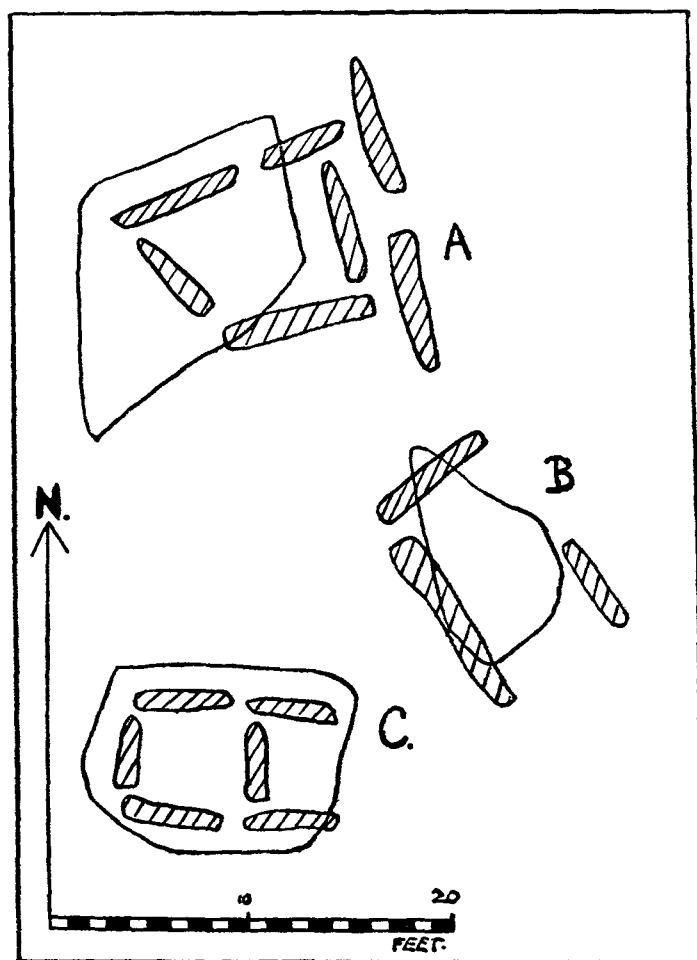


FIG. 5. TYPICAL CHAMBERS OF THE ZENNOR GROUP:  
(A) ZENNOR, (B) PENRHIW, (C) DYFFRYN, MERIONETHSHIRE

y Gawres group. But it may well be, although I deem it improbable, that these Longhouse chambers are still intact from the point of view of chamber morphology, *i.e.*, that they never had approaching passages.

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It would then be possible to argue that they gave rise to the Welsh passage-graves, that they were degenerate passage-graves, or that they had no connexion with the passage-graves in North Wales—the first and third of these arguments would manifestly allow one to claim chronological priority for them, but the complexity of passage-grave morphology as well as the wealth of analogues for the Welsh passage-graves would suggest that the second of these possible arguments was the correct one. The adoption of this thesis again gives a late date to the Longhouse type of burial-chamber. Many burial-chambers of the Zennor type preserve features which unambiguously connect them with more elaborate monuments in the British Isles. Thus Dyffryn, Zennor, and Trethevy have traces of segmentation, while Pentre Ifan and Carn Turne have orthostatically walled semi-circular forecourts, and some sites such as Zennor, Trethevy, and the Grey Mare and her Colts at Abbotsbury (Dorset) have straight orthostatic façades flanking their entrances. All these features remind one of the segmented gallery-graves of northern Ireland, southwest Scotland and Man; and there can be little reasonable doubt that the Zennor group derives from these monuments or from similar derivations of them in other parts of Ireland.<sup>42</sup> It seems therefore probable that gallery-graves such as Trefignath and the Bridestones in southern Britain, which are analogues of the Irish, Scottish and Manx monuments already mentioned, must be earlier than the Zennor group. There is therefore no evidence to support the chronological priority of the Longhouse and Zennor types over all the other burial-chambers in England and Wales.

The task of studying the morphology of the burial chambers of southern Britain is immensely complicated, as Wheeler has recently pointed out,<sup>43</sup> by the paucity of evidence with regard to the form of the associated barrows, and this difficulty is most acute in dealing with the sites mapped on FIG. 3. Fleure and Peake doubt whether some of these sites 'were ever covered by a mound,'<sup>44</sup> and Fox and Bowen say 'it is a remarkable fact that with one exception none of the "chambered tombs" of Carmarthenshire—or of the southwestern counties generally—show any trace of a mound or cairn: and it must be considered doubtful whether such ever existed'.<sup>45</sup> Some have gone to the other extreme

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<sup>42</sup> e.g. Gaulstown, Ballynageragh, and Knockeen, all in co. Waterford.

<sup>43</sup> *Archaeological Journal*, 1934, xci, 332.

<sup>44</sup> *J.R.A.I.*, LX, 63.

<sup>45</sup> p. 42, vol. I, of *A History of Carmarthenshire* (ed. Sir J. E. Lloyd) Cardiff, 1936. This statement is manifestly incorrect. *Vide infra*.

## THE 'DOLMENS' OF SOUTHERN BRITAIN

and roundly asserted that these chambers are 'simply the exposed burial chambers of barrows';<sup>46</sup> while the Congress handbook already referred to claims that they 'are regarded by Crawford as merely the cists of ruined long barrows'.<sup>47</sup> The truth is that many of these chambers show very clear signs of covering or encompassing barrows, while others show none at all.<sup>48</sup> Unfortunately no example of the Longhouse type has any trace of a barrow, but, in view of the suggested affinity of this group with the passage-grave group we may, I think, safely assume that if the Longhouse type had barrows originally they were round ones such as passage-graves in Ireland, Brittany and Spain normally have. With regard to the Zennor type on the other hand, there is much evidence of the former existence of covering barrows, although this evidence is not consistent. Lanyon Quoit stands at the northern end of a low long barrow, Corringdon Ball in south Devon at the southern end of a very fine long barrow, the Grey Mare and her Colts at the east end of another, but Chun is set in a round barrow. In North Wales, Dyffryn, Cors-y-Gedol, Roe Wen North, and Maes-y-Facrell have normal long barrows,<sup>49</sup> and Grimes suggests another long barrow at Bron-y-Foel Isaf. Bryn yr Hen Bobl is however recessed in a round barrow which originally covered it completely, while in South Wales, Cerrig-y-Gof, the four sites on Pendine Head, as well as the two sites known as Sweyne's Houses on Rhossili Down in Gower, all have round barrows. If the affinities mentioned above of the Zennor type with the Irish-Scottish gallery-graves be accurate, this would strengthen the existing evidence that the Zennor type has characteristically long barrows. But its occasional association with round barrows cannot be denied, nor, at present, easily explained. Any further discussion of the form of the barrows which the Longhouse and Zennor types may have had originally would involve us in the intricacies of the theory of the free-standing chamber. Suffice it to say here that argument by analogy

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<sup>46</sup> *Ordnance Survey Prof. Papers*, N.S., no. 13, p. 5 (1936).

<sup>47</sup> *A Handbook of the Prehistoric Archaeology of Britain*, 1932, p. 25. This is an iniquitous misquotation. Crawford says clearly, 'I repeat that I am dealing only with the district covered by Sheet 8 (of the *Ordnance Survey Quarter Inch Maps—G.E.D.*) where, as I believe, megalithic chambers were covered only by long mounds or cairns' (*Long Barrows of the Cotswolds*, p. 21).

<sup>48</sup> Careful excavation and detailed air-photography may reduce the number of those with no barrows visible at present to the earth-bound field-archaeologist.

<sup>49</sup> Even if Grimes's contention (*P.P.S.*, 1936, p. 124) that the mound west of this chamber is natural, be correct (which I deem improbable) there is no doubt that the mound is functionally a 'long barrow'.

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affords no proof, and it cannot be demonstrated that chambers which are now free-standing were originally enclosed in a barrow. There are plenty of examples of burial-chambers which certainly never had barrows,<sup>50</sup> and it seems to me highly likely that the majority of the sub-megalithic type never had any barrows. It is just possible that those examples of the Zennor type that now have no barrows, and all the sites in the Longhouse group, never had barrows, but on the whole it seems improbable.

It should be clear from the forgoing that to talk vaguely of dolmens in southern Britain is to imply a non-recognition of the many morphological groups which may be distinguished in that region. Nor does any one of these groups correspond to the Montelius definition of the dolmen. In fact the theory of the Montelius dolmen is as inapplicable to England and Wales as it is to Iberia and Brittany, and also, I suspect, even to Scandinavia. As was said at the outset, the word dolmen can be, and is, used in a variety of ways : but it must be emphasized that as the Montelius definition is morphologically the most restricted that has ever been given to the word, other uses must connote even less morphological exactness. Apart from this it seems not unreasonable to ask that when archaeologists use the word dolmen with reference to the burial-chambers of western Europe, they should specify with what implications they do so. The French peasants of the Morbihan at the present day give the name dolmen to all megalithic burial-chambers, whether they be passage-graves, gallery-graves, 'lichavens' or 'simple' denuded chambers. This is Bonstetten's use of the word and it is a legitimate and useful one, which, were it not for the other varied and unfortunate uses of the word, could perhaps be recommended. The present writer however would prefer to see the word dolmen dying out of archaeological parlance, even as it is at present disappearing from the revised sheets of the Ordnance Survey maps.

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<sup>50</sup> Gor and Los Millares in southeast Spain, for example, or the Cretan *tholoi*.

## Notes and News

### MANUFACTURE OF GUN-FLINTS

The monograph of S. B. J. Skertchly<sup>1</sup> on 'The Manufacture of Gun flints' has long been recognized as the standard work on the subject. This, together with an excellent article on 'The Flint Knapping Industry at Brandon', by Rainbird Clarke,<sup>2</sup> should be consulted for an extended account of the industry.

The authors of the present note have long been interested in the technique of flint flaking, but on attempting to reconstruct the process of gun-flint making from the published descriptions, they found that an essential feature of the knapping process has not been recorded. They found also that the position of the 'Stake' or anvil relative to the knapper has not been clearly defined, while there is a conflict of evidence as to which face of the flake is placed uppermost on the stake in the process of knapping. In order to clear up these and other points the authors have recently visited the knapping workshop of Mr V. R. Edwards at Brandon and have embodied their observations, together with matter relevant to them, in the following note.

#### I. THE POSITION OF THE STAKE RELATIVE TO THE KNAPPER

The knapper is seated on a low stool at the side of a circular bole formed of a section of a large tree trunk (elm or oak). The knapper sits with his left leg extended, tangent to, and touching the side of the bole, his right elbow closely set into his right groin and his wrist resting on his left thigh (FIG. 1).

The end of the knapping hammer is grasped in the fingers of the right hand with the thumb resting upon the flat surface of the haft to prevent the hammer turning in the hand when the blow is delivered (FIG. 1).

The stake (FIG. 2), which is of wrought iron, is set in a hole in the wood bole about 3 inches deep, and is slightly inclined towards the knapper. The shank of the stake is surrounded in its socket by a piece of leather in order to make the reaction of the stake more resilient and so reduce the shock of the blow on the wrist of the knapper, and possibly also to damp any vibration in the stake which might interfere

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<sup>1</sup> District memoir of the Geological Survey of England and Wales, 1879.

<sup>2</sup> ANTIQUITY, March 1935, pp. 38-56.

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with the fracture. The stake is set about 4 or 5 inches from the edge of the bole, with its long edge at right angles to the long axis of the hammer and forearm. When there is no flake in position the blow falls on the leather at the root of the stake and clears the upper edge of the stake by about half an inch.



FIG. 1. POSITION OF KNAPPER

### 2. POSITION OF THE FLAKE ON THE STAKE

The flake to be cut into gun-flints is held in the left hand with the bulbar surface uppermost and is pressed firmly on the edge of the stake, making contact on the right hand side of the stake facing the knapper (FIG. 1). The thumb is pressed on the bulbar side of the flake, while the fingers are pressed at the same time on the back of the stake and on the under side of the flake so as to secure a rigid contact.

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The long axis of the flake is inclined downwards towards the knapper, the amount of inclination to the horizontal varying from  $45^{\circ}$  to  $25^{\circ}$  according to the amount of undercut (oblique fracture) required in the fracture. The larger angles give an increased undercut. When the angle is decreased so that the flake lies horizontally on the stake the fracture becomes perpendicular or square to the surface of the flake, and there is no undercut.

The position of the flake on the stake may perhaps be made clear by a consideration of the wear that takes place on the stake which marks the place where the flakes have been repeatedly applied to its surface (FIG. 2B).

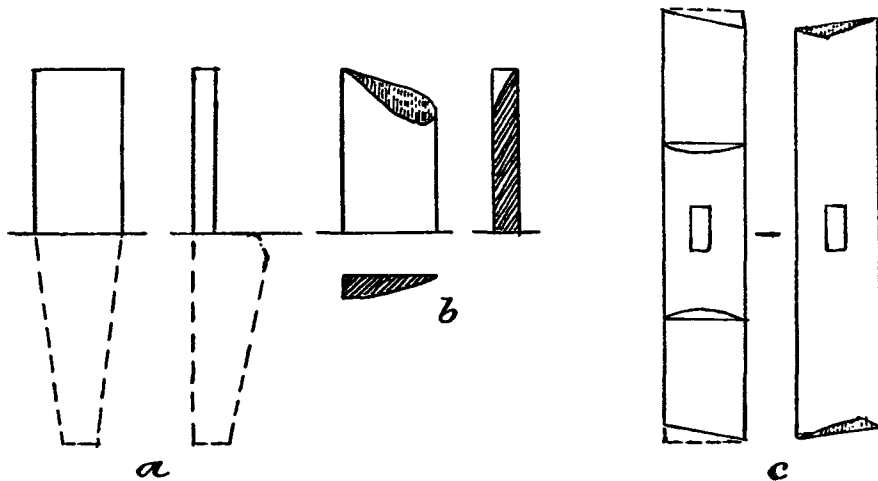


FIG. 2

a. NEW STAKE      b. WORN STAKE      c. WEAR ON KNAPPING HAMMER

It must be remembered that the flakes from which the gun-flints are made have either one or two ridges on them. These ridges are held at right angles to the edge of the stake and make a localized contact with it, and at this point the stress due to the reaction of the stake is concentrated.

The edge of the knapping hammer only covers half the width of the flake so that with flakes with two ridges the maximum compression comes on one ridge only, and it is here that the knot or cone of percussion is formed which gives rise to the undercut fracture. When the surface between two ridges is of shallow concavity the knot is formed on



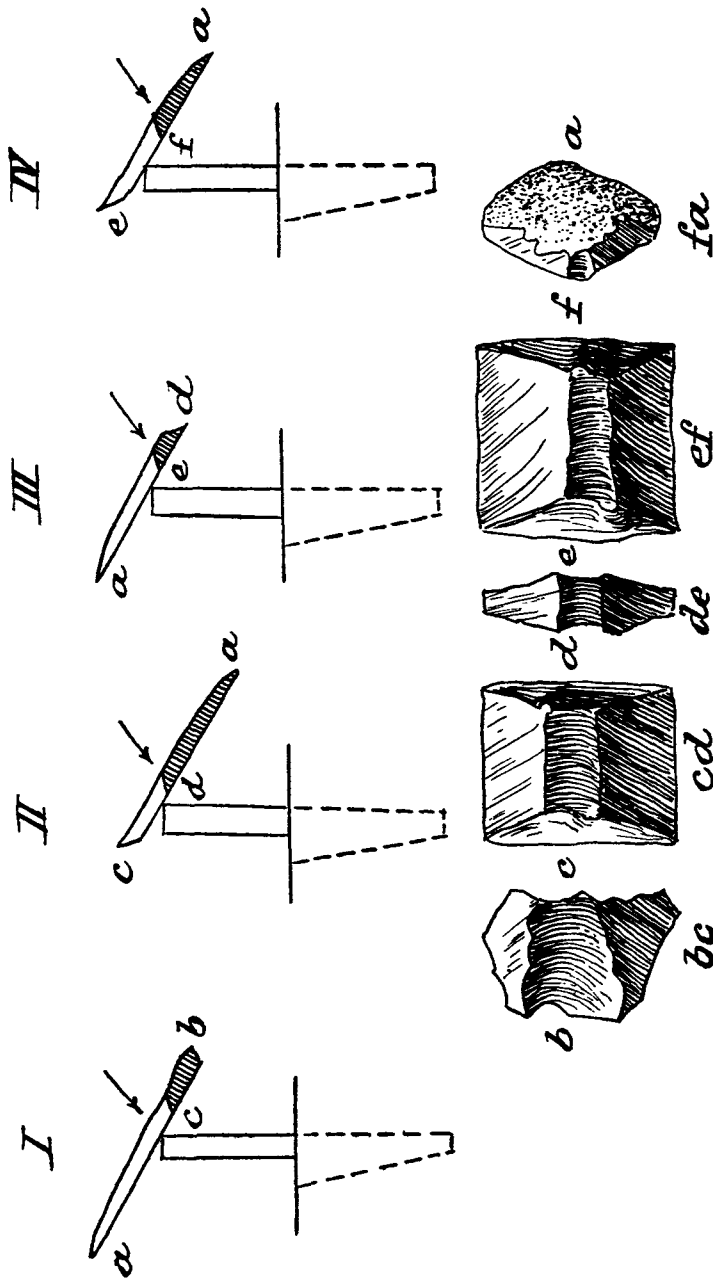


FIG. 3  
THE NUMERALS INDICATE THE SEQUENCE OF BLOWS, AND CROSS-HATCHING REPRESENTS THE PIECES  
STRUCK OFF WITH EACH BLOW

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this surface directly under the corner of the knapping hammer. From time to time the worn top of the stake is filed square (FIG. 2A). The portion of the stake projecting above the table top is initially about  $2\frac{1}{2}$  inches long, thus allowing considerable material for removal by wear and filing.

The striking edge of the knapping hammer is about one tenth of an inch thick and about  $1\frac{1}{4}$  inches wide. When new the head of the knapping hammer is about 8 inches long and the edge is square, but when worn by use the edge becomes oblique, sloping down from left to right as shown in FIG. 2C. From time to time this obliquity is removed by filing.

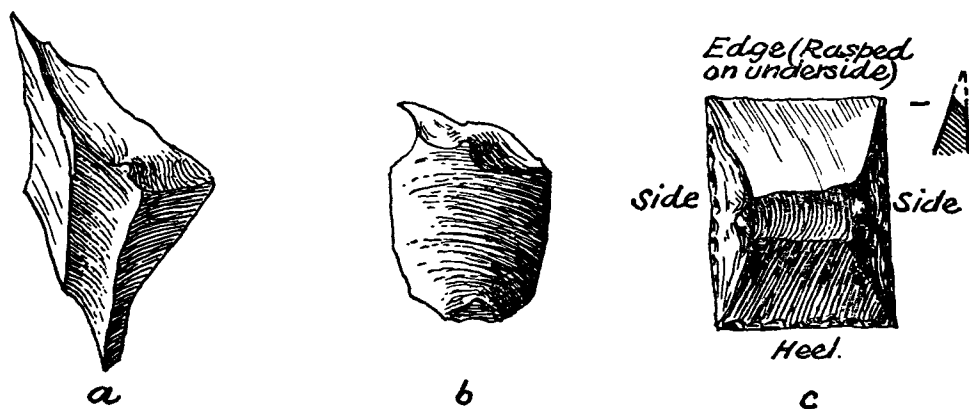


FIG. 4

- a. FLAKE HELD OBLIQUELY ACROSS STAKE SHOWING SLANTING OBLIQUE FRACTURE AND 'KNOT' OR DEMI-CONE OF PERCUSSION ON THE FACE NEXT THE STAKE
- b. TARDENOIS BURIN (SEBIL III) SHOWING DEMI-CONE OF PERCUSSION ON THE FACE STRUCK BY THE HAMMER
- c. GUNFLINT WITH DEMI-CONES OF PERCUSSION FORMED BY THE REACTION OF THE STAKE

### 3. CUTTING THE FLAKE INTO SECTIONS

When being knapped the end of the flake projects about half an inch beyond the edge of the stake and the left-hand corner of the hammer when in action is over the mid-point of the width of the flake.

The knapping blow is given entirely by the wrist, the forearm being held quite still and pressed close to the body. For thin flakes the force required is little more than that due to the weight of the hammer falling through an arc about six inches in length, but for thick flakes a good sharp blow is necessary.

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The sequence of blows necessary for making two gun-flints from a flake is shown in FIG. 3 :—

(I) The first blow detaches the bulbar swelling (the piece B-C) which is discarded as waste, leaving on A-C an undercut fracture at C.

(II) The flake is now rotated in an anti-clockwise direction through an angle of  $90^\circ$ , and any irregularities there may be on the side of the flake are trimmed off.<sup>3</sup> This done the flake is rotated through a further  $90^\circ$  or  $180^\circ$  in all. The second blow delivered at D (FIG 3, II) produces an undercut fracture which severs the first gun-flint C-D from the flake. The sides of the gun-flint are now regularized by light blows of the hammer and trimmed to the required size. The gun flint is complete except that its front edge is now rasped against the stem of the stake in order to remove a series of small squills from the plane face so as to regularize the edge and strengthen it by giving it a less acute angle (FIG. 4C).

(III) The portion A-D carries at D a fracture which is undercut in the opposite direction to that required, the small portion bearing this fracture D-E is therefore removed by the third blow which forms an undercut fracture in the required direction.

(IV) The remainder of the flake A-E is rotated on the stake and the fourth blow removes the end of the flake F-A, which is discarded as waste leaving the gun-flint E-F which is then rotated and trimmed as before.

The order of operations III and IV may be varied according to preference so that IV precedes III. Similarly there is a choice as to whether the bulbar end or the other extremity of the flake is removed first in operation I. This depends upon which edge of the flake is selected as being most suited to form the ' edge ' of the gun-flint.<sup>4</sup>

The removal of the small portion D-E has not hitherto been recorded, but the operations of trimming and cutting the flake are carried out with such rapidity that it is little wonder that this stage of the manufacture has escaped notice, indeed it was only from theoretical considerations that we were led to look for it. From long flakes three or more<sup>5</sup> gun-flints can be made ; the procedure is the same as that

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<sup>3</sup> Professor Henry Balfour has informed the authors of an interesting observation made by him when watching the late Mr Fred Snare at work making gun-flints. He noted that Snare when trimming and removing irregularities from the sides and 'heels' of the gun-flint did so with a sideways, 'shearing', blow of the knapping hammer.

<sup>4</sup> Skertchly's Memoir, p. 32.

<sup>5</sup> Ibid., p. 31 and fig. 19.

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outlined except that two or more small portions D-E (FIG. 3) are cut off and discarded.

### 4. UNDERCUT FRACTURES

From a technical standpoint the undercut fractures on gun-flints are of great interest. In normal flaking the parent block bears the pit of percussion or negative conchoid, while the flake which is detached bears the positive conchoid or bulbar swelling. In gun flints the 'knot' or mark of percussion which takes the form of a demi-cone is formed by the reaction of the stake and not by the hammer. This knot is formed on the parent block (*i.e.* the flake) and the piece detached bears the negative conchoid which is exactly the reverse of the effects found in normal flaking. The demi-cone and its concomitant undercut or oblique fracture are not found in any prehistoric tools except in the Tardenois burin and its derivatives.

In the technique of the Tardenois burin as described by M. Vignard<sup>6</sup> the 'stigmat' or demi-cone of percussion is formed by means of a pointed hammer on the bulbar face of the flake, which is held uppermost and is placed obliquely across the ridge of a strong flake on a table as anvil, and the undercut fracture instead of being at right angles to the axis of the flake as in a gun-flint slants across the face of the flake. This slanting undercut fracture (FIG. 4A) can be obtained with the gun-flint technique by holding the flake on the stake inclined to the right hand or to the left instead of being square to the edge of the stake, the long axis of the flake is at the same time inclined downwards towards the operator as previously described.

The French knappers (now extinct) used a hammer head in the form of a thin disc which made a point contact on the flake, but they were unable to produce the undercut fracture by means of a single blow. They produced the undercut by removing a series of small flakes or 'gnawing' as the English knappers term it. Between 1838 and 1848 French gun-flints with their 'gnawed' edges and heels were sent to Brandon to be trimmed by the single-blow undercut fracture. The survival in England of this special form of technique may be added to the arguments adduced by Skertchly<sup>7</sup> for the continuous existence of the industry at Brandon from prehistoric times.

SIR FRANCIS H. S. KNOWLES and ALFRED S. BARNES.

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<sup>6</sup> Ed. Vignard, 'Les Microburins Tardinois du Sebilien', *C.R. Congrès Pré-historique de France Xe Session, Périgueux*, 1934.

<sup>7</sup> loc. cit.

## ANTIQUITY

### PREHISTORIC SOLDERING AND WELDING

The following note is an abstract of a paper read before the International Congress of Prehistoric and Protohistoric Sciences at Oslo, in August 1936, by Herbert Maryon, on 'Soldering and Welding in the Bronze and Early Iron Ages'. It was published in *Technical Studies in the Field of the Fine Arts*, October 1936. We wish to thank both Mr Maryon and Mr Christopher Hawkes for their help in producing the abstract.

The Near East was 2000 years in advance of western and northern Europe in the technical processes of metal-working. The processes of making soldered joints, beaten hollow-ware, cored castings, and the setting of stones reached the West long after they had been in general use in the East.

Investigation of the technical processes employed in making the gold earrings of x-sectioned fabric from graves of the Mycenaean period at Enkomi, Cyprus, and Tell el-Ajjul, Palestine; and the earrings and 'Tara' torcs of identical design but of different construction, found in Ireland, Great Britain and northern France, shows that the Western examples were made before a knowledge of soldering had reached our shores. Their period is the Middle Bronze Age, and examples of the early use of solder in western Europe do not occur before the Late Bronze Age. These 'Tara' torcs and earrings were made by hammering out a rectangular bar of gold into an x-section.

A solder may be defined as 'any metal or alloy *whose melting-point is lower* than that of the metal or alloy to be soldered, which may be run between the parts to be joined to fasten them together'. The use of such a term as 'autogenous soldering' involves a verbal contradiction, and should be discontinued. A valid and important distinction, however, remains between 'hard' and 'soft' soldering. Copper as an alloy with gold is from 14 to 11 times as potent in reducing the melting-point as compared with an equal weight in silver. So the amount of solder to be sought for in any specimen is correspondingly less. Three per cent. of copper is sufficient to produce an efficient solder if a temperature of 1000° C. is employed. Ancient sheet-gold was hammered out on a stone or metal anvil, and blemishes on this anvil would leave ridges in relief on the surface of the gold. The ancient goldsmith originally employed a piece of naturally alloyed gold as a solder on better quality gold, for at first he was not skilled metallurgist enough to *make* a solder deliberately by the addition of alloy.

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Examples of early soldering show traces of the solder, which flowed over and round any surface ridges. But the ancient worker had also a second method of soldering, which made possible the fine granulation work of the Greek and Etruscan goldsmith. The rediscovery of what was probably their method has been made by Mr Littledale, and the description of the process will be found in the paper above cited. The solder is made on the spot where it is used, from chemically divided copper and some of the gold from the adjacent parts of the work. This discovery throws light on the meaning of the observations by Pliny and Agricola on what they knew as 'chrysocola'. The process is readily distinguishable from ordinary 'soft' soldering, of which an early example might also be quoted.

Of welding there are three kinds—(a) pressure-welding, hot or cold, without fusion; (b) sweating together or surface-welding, without pressure. The conditions under which gold objects can be sweated together are not readily obtained, but may be discovered by considering the curves of the required temperatures; (c) fusion-welding, which may be defined as 'to join metals by melting their adjacent edges, or heating the adjacent edges, and running some molten metal of the same kind into the intermediate space'. There are indisputable ancient examples of fusion-welding. Now 'casting on' or 'burning on' are processes of *casting*, quite different from the above, with which we are familiar in early work. But the question is, did the goldsmiths of Sumeria, Egypt, Greece, Etruria, or Ireland employ the processes of sweating or fusion-welding? The answer is definitely 'no', for those examples of their work which have been claimed to be sweated or fusion-welded are really soldered by the hand soldering process already noted. But their joints have been over-fired. By accidentally raising the temperature to about 1000° C. the ancient worker produced soldered joints which are indistinguishable from those produced by fusion-welding, for the quality of the solder in a joint depends upon the temperature to which the work is raised.

The result of the investigation is the clearing up of obscurities which have long been current and a useful warning to archaeologists to make sure that when they use technical terms they know what they are talking about. In the case of the 'Tara' torcs, a series of earlier studies of their technique is hereby in large part superseded (see *Man*, 1932, 222, with rep.), but we are left with an important new chronological point in the history of prehistoric craftsmanship in the West.

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### CAUSEWAYED SETTLEMENTS

The origin and function of the neolithic British 'causewayed' settlements has long puzzled archaeologists. The type is best represented at the classic type-site of Windmill Hill, Wilts, and at Whitehawk, on Brighton race-course, Sussex. The characteristic feature of settlements of this type is the surrounding ditch (or ditches, for there are often several) broken by numerous causeways of solid chalk, evidently left undug for some definite but obscure motive. These causeways are plainly visible on the surface and can be seen, for instance, at Knap Hill, where the type was first recognized in 1908 by Captain and Mrs Cunnington (*Wilts. Arch. Mag.* 1911-12, xxxvii, 42-65).

At the Trundle post-holes, set obliquely in the ground, have been found (*Sussex Arch. Collns.*, LXXII, 106-11; *Archaeology of Sussex*, by E. Cecil Curwen, 92, plate 5). This, together with the abundant remains of pottery and of hearths, seems to prove that the so-called ditches were in fact used as habitations. This explanation, first put forward at Windmill Hill by the Abbé Breuil, and subsequently advanced independently, after his excavation of the Abingdon site, by Mr Thurlow Leeds, seemed at first incredible yet incontrovertible. Since then more evidence has accumulated, all pointing in the same direction. The Beni Mguild today dispose their tents in a circular formation, keeping their flocks and herds protected in the middle. Gaps are left at frequent intervals, to allow passage for them, but are blocked when they are within by a hedge of thorns (ANTIQUITY, 1933, vii, 345).

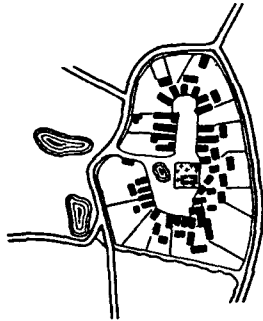
Now comes archaeological evidence, from Khalepye in the province of Kiev, U.S.S.R. 'The settlement was circular in plan, enclosed by a single row of houses, with doors [gates ?] opening on the enclosed space, the whole resembling a fort, into which the domestic animals were driven at night for protection. The houses were built of clay, and were about 20 metres long' (*Nature*, 26 Dec. 1936, p. 1103). The villages lived by means of agriculture and cattle-breeding, with hunting as an auxiliary occupation. The culture was of the Tripolye type.

Here then, in a region and culture which may have remote connexions with our own British neolithic, we find a plausible parallel that may explain our causewayed settlements.

One is tempted to go further and speculate upon the origin of the hill-fort itself. Is it not possible that it may have originated in some such disposition as this? A feature characteristic of some of our 'forts' especially those of Cornwall, such as Chun, is the fact that there is an

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almost continuous circle of huts crouched round the inside of the innermost rampart and built immediately beneath it. May this be a survival of the older tradition? Or is it merely utilitarian, to obtain shelter from the wind? (If so, those on the northeast segment did not get much!) Once the need of defence from outside arose, and was met by the construction of a rampart and ditch placed outside the huts, it would obviously be absurd to leave gaps for the enemy to enter; and the cattle could still be kept in the central space. Such a theory assumes a continuous evolution on the spot, and is unfortunately not applicable in this country, where there seems in every known instance to have been a considerable gap between the first (Neolithic) and the later (Iron Age) occupation, as, for instance, at the Trundle and Maiden



VILLAGE OF GOTTSCHKEINA, NEAR LEIPZIG

Castle. But it may have occurred abroad if occupation was continuous. Perhaps future excavation will decide the matter.

Again, is it merely fanciful to detect a survival of this earliest 'Ringwall' type of settlement in some of the modern nucleated villages of Central and Eastern Europe? Students of village-types have recognized one such that they usually call 'Slav', where the houses face inwards to a central open space. The houses themselves are disposed in a circle or rough oval, and their gardens, orchards or paddocks run out behind, usually to a road. In the central 'village green', whose area is relatively large, stands the church, and there is usually a pond. Travellers in Eastern Europe will be familiar with the type. It is common in Transylvania, where the churches are often fortified, and sometimes (as at Neithausen [Netus], where the tower is used to hang up sides of bacon) serve also as village store-houses. No doubt the type is determined rather by geography than by race, and the term 'Slav'



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should be used with due reserve. The fact that such villages occur in Transylvania, where Roumanian, Magyar and German cultures meet and mix, should instil caution. Nevertheless geographical and other factors may have caused it to develop and survive longest in regions now occupied by Slav and Slavonic cultures. It is at least curious that modern representatives (if such they are) of the type should still survive in a region where the prototype is known to have flourished, and where it may have been invented.

But the example of the Beni Mguild warns us that the type may also have been invented independently more than once.

Meanwhile let us distinguish clearly between speculation and ascertained fact. That the Khalepye discovery is connected, typologically at any rate, with our causewayed settlements seems at any rate to be a good working hypothesis. We shall look forward to seeing the full publication of the results of the excavation, especially the plan of the site. One feature about which we hope to be given full information is the nature of the ground upon which the houses were built. Were they built upon the flat (natural) surface of the ground, or upon excavated trenches? If the latter, the analogy with our sites will be very close.

O.G.S.C.

## MAT-MAKERS OF HULEH

Lake Huleh is the northernmost of the three lakes in the Jordan valley. Beds of papyrus grow in it, and provide materials for an interesting handicraft—that of mat-making. The mats are used as walls and roofs for huts. The industry may claim to be one of the oldest in the world, for reeds (if not papyri) were used to make the oldest known habitations in the adjacent region of Mesopotamia. It is desirable that its technique should be studied before it is too late because the lake is shortly to be drained and turned into agricultural land. Being malarious, one cannot regret its forthcoming disappearance. But it is all the more important that steps should be taken at once to survey the whole region. The anthropological aspects are particularly interesting, because of the ‘Ethiopic’ (or ‘negroid’) character, certainly of the people and possibly also of the flora and fauna. We strongly support the plea for an anthropological study of the Huleh region made by Mrs Crowfoot in the *Palestine Quarterly*, October 1936, p. 230, and would call the attention of the authorities to its importance. Articles by Mrs Crowfoot herself (*P.E.F.*, *Quarterly Statement*, October 1934, p. 195) and Mr Theodore Larsson (*ibid*,

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October 1936, pp. 225-30) have admittedly merely scratched the surface of a most fascinating subject, their visits being of a few hours only. It is now admitted that when Governments are obliged to destroy the past in the interests of the present and future, they incur an obligation to record what they annihilate. That obligation was recognized by the pre-war Archaeological Survey of Nubia, which rescued from oblivion some of the remains submerged by the building of the Aswan Dam. The principle is recognized, though not always implemented, in Great Britain. A Cabinet Minister said recently: 'A public conscience has at last been roused to the fact that man does not live by bread alone, and that governments have a duty in archaeological matters which is no less a duty than the provision for social and material progress and welfare'.\* It is a duty which is recognized almost universally, and often generously, by other countries. We hope that the Palestine Government will not be behind modern requirements in carrying out an obvious duty involving small expense and bountiful returns.

The anthropology—again in the widest sense of the term—of the Fertile Crescent and of Egypt is still largely an unworked field, whereas the archaeology of those regions has been more fully developed. But modern survivals can illuminate the past and make it real, and they will not survive much longer. Let not posterity have cause to reproach us of having yet once again been too late (or too mean) to do our duty. Otherwise we shall have earned the stinging sarcasms with which Stukeley has immortalized the memory of Farmer Brown at Avebury. We are now doing our best to repair the damage there, two hundred years too late. But how much better it would have been not to have allowed it to take place!

### BULLINGTON PRIORY, LINCOLNSHIRE (PLATE 1)

Bullington was founded between 1148 and 1154 by Simon son of Walter de Kyme as a priory of the Gilbertine Order. This order, established by St. Gilbert of Sempringham about 1139,<sup>1</sup> has a double interest, as it was of English origin, and had convents in which nuns,

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\* The Rt. Hon. W. Ormsby-Gore, M.P., presiding at the Annual General Meeting of the British School of Archaeology in Jerusalem (reported in the P.E.F. Quarterly Statement, January 1937, p. 17). The facts stated at the same meeting by the Director of the School, Mr P. L. O. Guy, indicate that this duty has not always been carried out. Alone of all the national archaeological schools in Jerusalem, the British School, that of the mandatory power itself, has no Government grant and no 'local habitation'.

<sup>1</sup> For history of the order, see *Victoria County History Lincolnshire*, II, 179, and R. Graham, *St. Gilbert of Sempringham and the Gilbertines*.

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lay-sisters, regular canons and lay-brothers lived together ; though the women were most strictly separated from the men by walls and rules. Such an arrangement was in no way an innovation, as joint convents for men and women had been in existence from much earlier times. The Benedictines of Fontevrault, who had important dependencies in England, had in their convents both nuns and monks, while several of the independent nunneries had monks or canons, with lay-brothers attached to them. But nearly all of these had become houses of nuns alone by the early 14th century, while the Gilbertine double houses continued until the general suppression, with the Bridgitine convent of Sion which had been founded in the 16th century.

Sempringham was the head house of the order of Gilbertines, which had 13 double convents in Britain, two of which, Tunstall in Lincolnshire and Dalmelling in Scotland, only survived for short periods. There were also 12 priories of canons without nuns, with 5 lesser cells or halls. Bullington ranked fifth in importance among the Gilbertine houses, and in the early days of the order the number of inmates was limited to 100 nuns and lay-sisters and 50 canons and lay-brothers, which was surpassed by 140 and 70 at Watton, 120 and 60 at Sempringham and 120 and 55 at Chicksands and Sixhills. But it is very doubtful if such numbers were ever reached. All the houses of the order were suppressed in 1538, and the pension lists may give some idea as to the number of inmates at that time, Sempringham, with 17 nuns and 17 canons, being first, while Bullington, with 15 nuns and 10 canons, was third. The net annual value of Bullington was given as £158 7s 11d in 1535, while that of Watton, which was the richest house in the order, was over £361.

The existing remains of all the double houses of Gilbertines are very scanty, with the exception of Chicksands, where a part of one cloister, and other buildings, were incorporated in a post-suppression mansion ; and Watton, where the prior's lodging is still inhabited. At Watton, however, the whole site was excavated between 1893 and 1898, which resulted in the discovery of two complete groups of conventual buildings, each with a cloister.<sup>2</sup> These were widely separated, but connected by a long narrow gallery. Here all the various buildings could be named with some certainty from a survey, taken at the suppression, which enumerated them and their dimensions. This is the only complete plan of a double Gilbertine house so far discovered. But

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<sup>2</sup> *Arch. Journ.* LVIII, 1 ff, with plan by W. H. St John Hope and H. Brakespear.

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Watton, as the richest house of the order, may have had more elaborate arrangements than the others. The distance between the nuns' and the canons' buildings made it necessary to have a kitchen for each, whereas only one was allowed for by the rule. It is therefore probable that in other double houses the two sets of buildings were closer together, if not adjoining.

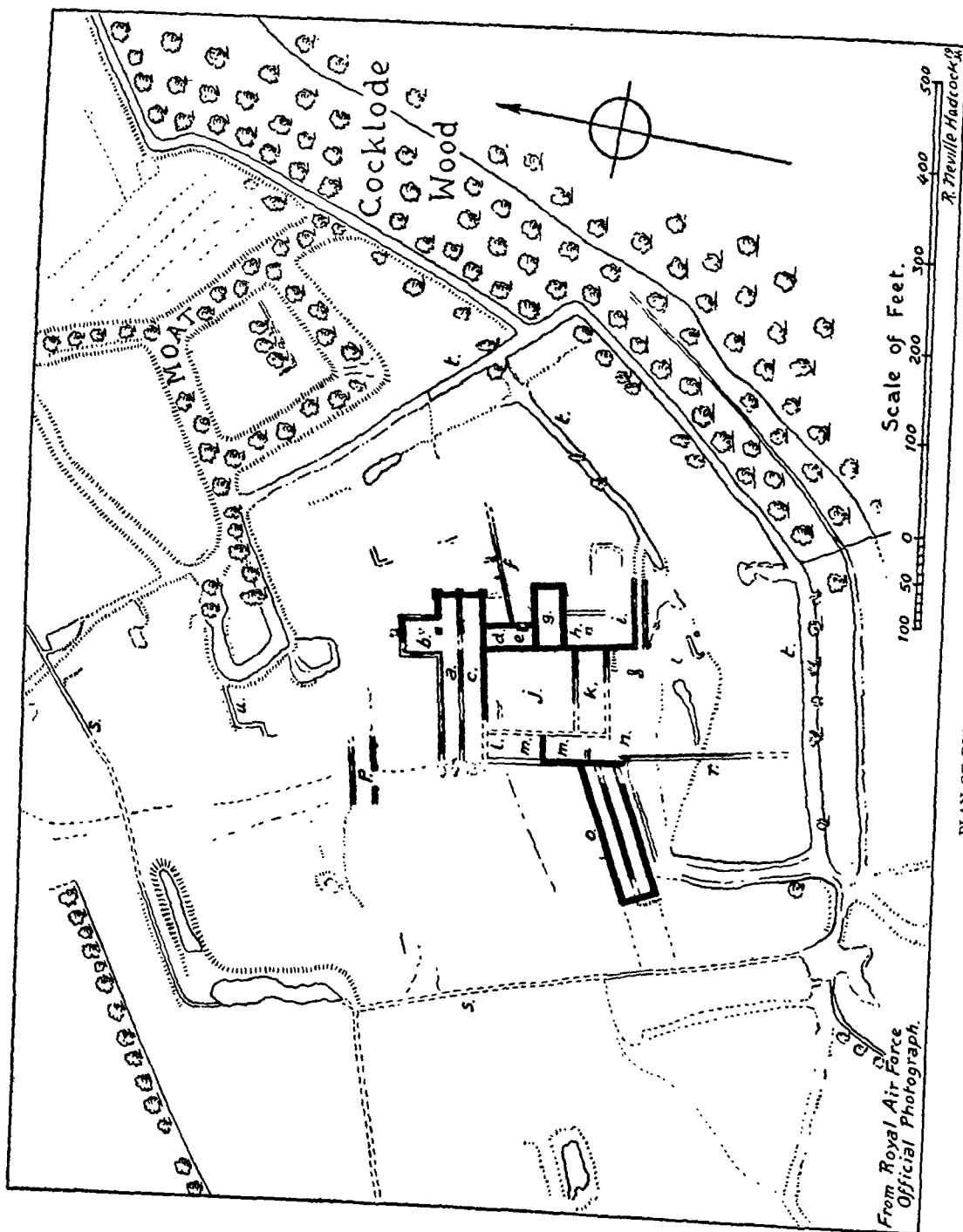
With regard to the conventual arrangement of Gilbertine houses something must be said of what the rule of the order ordained in this matter, with particular reference to the plan of Bullington. The accompanying plan (p. 216) has been made from an R.A.F. official photograph (PLATE I) without a personal visit to the site, which has not yet been excavated.

The rule of the Gilbertine order is given in full in Dugdale's *Monasticon Anglicanum* (1830, VI, part 2, pp. 1-XCIX preceding p. 947). This shows that, in spite of being double convents of nuns and canons, the nuns in these houses were more strictly enclosed than in other orders, and the buildings were so arranged that the nuns and canons could never see each other at ordinary times. Communication between the nuns and canons took place by means of windows which appear to have been so arranged as to obscure vision. All business was done at the Sisters' Window, four prudent canons attending to the affairs of the house. The Great Turning Window in the Window House was attended by at least two circumspect nuns, and was used for serving meals or provisions. In the church, the nuns' choir (C) was separated from the canons' choir (A) by a solid wall, and there was a similar window here through which the nuns received holy water and the Pax.<sup>3</sup> The canons' refectory was to be so arranged that meals cooked in the single kitchen under the care of the nuns could be served to them by turning windows, and there was to be one cellarium to serve both nuns and canons. The nuns were only allowed to talk to the outer world through a slit as long as a finger and as broad as a thumb, and then only in the presence of at least one other nun. Confessions were made through a similar slit. On certain great feast days a solemn procession was made round the nuns' cloister by the whole community, but on these occasions the side windows and corners were screened by curtains so that the canons and brothers, who led the procession, could not see the nuns and lay-sisters. Except on these occasions no one was ever allowed to visit the nuns' enclosure.

Every house of the order was to be enclosed by a ditch, with a

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<sup>3</sup> *Arch. Journ.* LVIII, W. H. St John Hope, with restored plan of turning window at Watton on p. 11.



PLAN OF BULLINGTON PRIORY, LINCOLNSHIRE  
drawn from an R.A.F. official photograph (see PLATE IV)

PLATE I



AIR PHOTOGRAPH OF THE SITE OF BULLINGTON PRIORY, LINCOLNSHIRE. (See p. 215)

*Ph. R.A.F., Ordnance Survey  
Crown copyright reserved*

PLATE II



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MEGALITHIC FONT IN CHRISTIAN CHURCH, MBAU, FIJI ISLANDS, FORMERLY A HLATHEN  
SLAUGHTER-STONE. (See p. 219)  
*ph. Commander W. Burrows, R.N.*

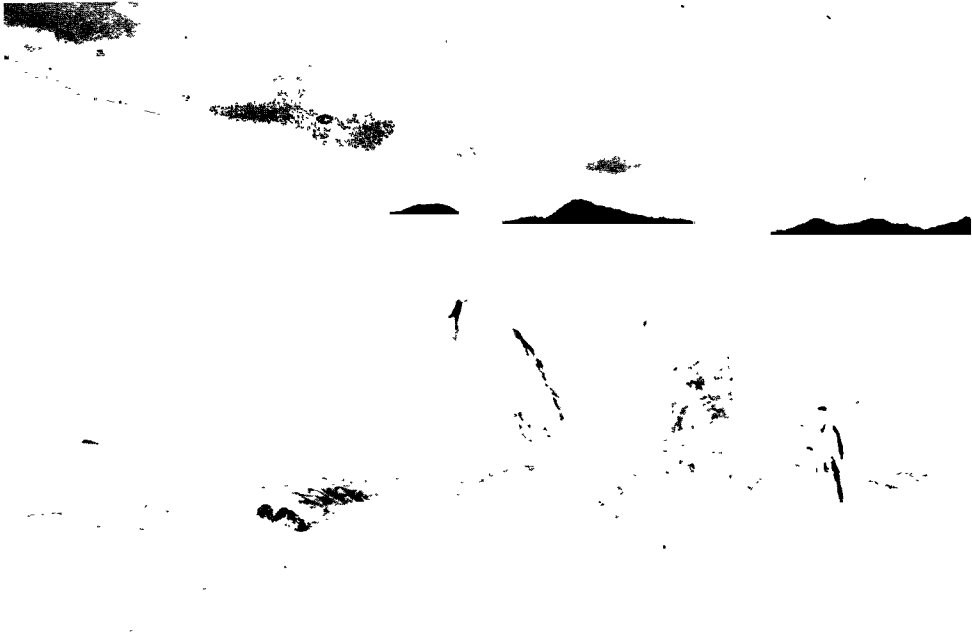
PLATE III



MODERN CAVE-LIFE AT WEST KILBRIDE, NEAR LARGS, SCOTLAND. (*See p. 219*)  
*ph. P. Saunders, Glasgow*



PLATE IV



MEGALITHIC STONES, BURJ HAMA, FROM THE SOUTHEAST (See p. 220)



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MEGALITHIC STONES, BURJ HAMA, FROM THE EAST. (See p. 220)

## NOTES AND NEWS

hedge or wall. Such a ditch (s) can still be traced at Bullington, where it surrounds the site with streams and water-courses (r). Comparing the plan of Bullington with the site plan of Watton<sup>4</sup> it will be seen that the general arrangement of these is very similar. At a later period an inner gate and wall may have been built at Bullington to make the precinct smaller on the north when the number of inmates had diminished. The building (p) may have been such a gate, while there seem to be traces of a wall (u) which possibly connected with it, and continued to join the western ditch.

It is impossible to say from the photograph if Bullington resembled Watton in the general arrangement of its conventual buildings. The church and nuns' cloister are similar in plan, though at Bullington the church is on the north side while it is on the south side at Watton. There seem to be distinct traces of a wall running from between the church and the chapter-house in a northeasterly direction, which may have been one side of a gallery similar to the one found at Watton, with the window house possibly at (f). On the other hand, there appears to have been a strong wall (R) which stretched from the presumed site of the kitchen (N) to the water-course enclosing the convent on the south. This wall was in all probability the western boundary of the nuns' enclosure, in which case the canons' buildings may have been to the west of those of the nuns.

The great building (o) is about 150 feet long, and it is difficult to account for. At Watton the guest-house adjoined the western range nearer to the church. But this was a very much smaller building; and there the only range of similar dimensions away from the nuns' enclosure was the canons' refectory together with the end of their dormitory range, where a rere-dorter would be expected. The west end of this building at Bullington certainly appears to have been drained, so that if the canons' buildings were on the west side of the nuns' this end may have been the canons' rere-dorter, and the remainder of the building their refectory. This would seem to agree with the rules, as the kitchen (N) under the care of the nuns, would serve both refectories. The position of the nuns' rere-dorter is fairly clear (i), and the water-course (r) was probably diverted through both for flushing purposes.

The presence of the moat on the northeast of the site cannot be explained without further documentary or other evidence, but it was probably in existence long before the priory was founded, and it may or may not have been made use of by the religious inmates, except in connexion with their drainage system.

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<sup>4</sup> *Arch. Journ.* LVIII, 9.

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Unfortunately no survey taken at the time of the suppression has so far been found relating to Bullington, so that the uses of the various buildings must be conjectural except in obvious cases, which are : (A) canons' choir, (B) north transept and chapels, (C) nuns' choir, (G) chapter-house, (H) calefactory, with their dormitory above, connecting with the church, (I) rere-dorter, (J) nuns' cloister, (K) refectory. 'Probably' may be applied to (D) chapel opening into the nuns' choir, (E) slype and inner parlour, (L) slype and outer parlour, (M) cellarium under lay-sisters' and guests' lodgings, (N) kitchen under the care of the nuns. Other buildings already referred to must remain extremely doubtful unless further evidence can be obtained. R. NEVILLE HADCOCK.

### CHRISTIANITY AND PAGANISM (PLATE II)

It is well known that each new religion succeeds in turn to the 'properties' of its unsuccessful rival. Islam took over the fetish known as the black stone, still in the Ka'ba at Mecca. Its appearance suggests a volcanic or meteoric origin. It was allowed to survive by Mahomet when he destroyed all the other idols found in the heathen shrine known as the Ka'ba. Sacred stones elsewhere—in the Forum at Rome and under the Coronation Chair in Westminster Abbey—have been taken over and reconsecrated to new uses. Megalithic remains in Western Europe were often taken over thus from the older religion. Thus we read of S. Sampson sanctifying a standing stone in Cornwall by putting the sign of the cross upon it; and many Breton megaliths bear crosses on their tops today. Sometimes sacred boulders were placed in churches—or shrines built round and over them. One such has just come to light in Clynnog church, Wales, 'under the crossing a little to the north of the centre . . . It appeared to be a glacial boulder and was 6 feet 2 inches long, 4 feet 2 inches wide and 3 feet 5 inches high. Bones were found near its base'.\* There is a large boulder in the chapel of St. Constantine, Harlyn Bay, Cornwall, and in a chapel at Maplescombe in Kent are two sarsens. (Other instances will be found in *Folk Memory*, by W. Johnson, 1908, ch. 7, and in the same author's *Byways in British Archaeology*, 1912, chapters 1 and 2. Foreign instances are given in Saintyves's *Corpus du Folklore préhistorique en France* (1934-6, 3 vols.); item 2070 is a 'dolmen' with a chapel built round it; see review in *ANTIQUITY* 1937, XI, 119.

The same process is going on today on the outskirts of western

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\* For this information I am indebted to Mr Harold Hughes, F.S.A.

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civilization. In the *Illustrated London News* (16 May 1936, p. 851) was published a photograph (reproduced, PLATE II) of a pagan sacrificial stone in Fiji, re-erected and dedicated to a new purpose in a Christian church. 'Shortly before the cession of the Fiji group to Great Britain (in 1874), the dominant chief (who had already become a christian) ordered the demolition of all the heathen temples on the main island, and the removal of the stones to his island of Mbau. With this material a church was constructed. The stone which stood outside the heathen temple in Mbau, used in the days of cannibalism to dash out the brains of victims, was converted into a font'.

This information has been confirmed by Commander W. Burrows, R.N., of Suva, Fiji, to whom I am indebted for permission to use his photograph of the stone, as well as to the Editor of the *Illustrated London News* for the loan of his negative. O.G.S.C

### CAVE-LIFE IN BRITAIN (PLATE III)

Writing in 1905<sup>1</sup> the late Professor Haverfield said :—'Caves may not be comfortable residences, but they have often been inhabited even in civilized ages. Plot, the historian of Staffordshire, observes that in his day—about 1680—Thurse House cave at Alveton was definitely occupied, and many parallels could be cited from even later ages'.

On PLATE III is a view of just such a modern instance, which has a certain interest, because it shows the tremendous range of house-types (if we can express it thus) to be found in the culture of a modern civilized state. Cave-life may not form a large element in the culture of modern Britain, but it does exist side by side with other half-forgotten primitive habitations like the 'black houses' of the Hebrides.

A number of unemployed men have made 'homes' in caves at West Kilbride, near Largs, Scotland. The caves are themselves little more than rock-shelters, with dry stone walls built across the front to keep out the rain and act as a shelter.<sup>2</sup> The men live there permanently. Recently the local Town Council had to decide whether to move them out or allow them to remain ; it was decided not to disturb them until suitable houses could be found at a reasonable rent.

The men regard the caves as their own property, and attempts at 'poaching' are quickly discouraged. Some of them have even given

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<sup>1</sup> *Victoria County History of Derbyshire*, 1905, I, 142.

<sup>2</sup> Similar walls are found to have existed in most ancient inhabited caves. See for instance *Proc. Soc. Ant. Scotland*, 1909, XLIII, 246 (cave at Archerfield, Dirleton, East Lothian, occupied in the Iron Age).

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names to their habitations. In the evening they either build their own fires or gather round a single communal fire.

Professor Haverfield was interested in caves because so many of those in Britain were inhabited during the Romano-British period. Cave-life, he pointed out, was not a result of the Saxon Conquest of England; the finds indicate a date in the 2nd or 3rd century as the 'floruit' of cave-life; though it may sometimes have begun earlier. But it did not continue up to the time of the arrival of the Saxons. We must therefore reject the refugee theory. Cave-life 'must be accepted as a feature, though not a common or predominant feature, in the civilization of Roman Britain'<sup>3</sup> and it seems that that statement may be true of Northern Britain.

### THE MEGALITHIC SITE OF BURJ HAMA (PLATE IV)

Reference is made (p. 483) in ANTIQUITY, December 1936, to the megalithic site of Burzahom, or rather of Burj Hama close to the village of Burzahom. A photograph (PLATE IV) of the megaliths may be of interest, as though these stones are no great distance from Srinagar they are difficult to find even when one knows of their approximate whereabouts, and in spite of their interest, they are known to comparatively few.

The excavation, the thrown-up earth of which can be seen in the photographs, is not extensive. It consists of an L-shaped hole with sides about 15 feet long and 4 feet wide, having a present depth varying from  $5\frac{1}{2}$  to 12 feet.

At the Office of the Superintendent of Archaeology and Research I saw all the objects which had been made over to the Kashmir Government by Dr de Terra. With the exception of a polished axe, the only one, they were not an impressive assemblage either as regards quantity or quality. The finds included undecorated pottery fragments and a moderate sized stone ring, much too small to be a mace head, possibly a weaving weight, but any assigned use would be quite speculative.

The 'black burnished' pottery, mentioned in the note referred to has not by any manner of means the significance attached to it by some. It is made today all round Pachmarhi in the Central Provinces and Belgaum in the Bombay Presidency, and no doubt at many other places besides. It is found round Pachmarhi, though in most cases with the

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<sup>3</sup> V.C.H. loc. cit., p. 201. The article contains a list of such inhabited caves in Derbyshire, together with references to others elsewhere, and it remains the best account of a curious byway of British archaeology. The caves are marked on the Ordnance Map of Roman Britain.

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burnish gone, in nearly all the cave-shelters, where its date may be as early as the 1st century A.D. It is found in sites in Northern India and is there datable to the late 2nd, early 1st centuries B.C. Its chemical composition is unlikely to show great variation. The blackness in the pottery is due to the mixture of animal excreta, mostly that of goats, with the clay.

The association dating value of such pottery, unless aided by exclusive and characteristic ornament, is nil. Too great stress on an identification with any found at Mohenjo-daro, which is only too fashionable in India at the moment, is, I feel, quite out of place in this instance.

The polished axe, a very fine one, had 'surface' written on it, and, I consider, probably came up in the course of digging the holes for a recent plantation of trees in the immediate neighbourhood. If so a depth of not more than about four feet is indicated for its original resting place.

These megaliths are undoubtedly of very ancient erection and of immense interest, but unless there is much more conclusive and striking evidence than I have been able to see, the site has no claim as an outpost of Indus civilization. It stands, however, to lose nothing in the way of value or prestige in consequence.

D. H. GORDON.

### IRON-SMELTING WITH LAKE- AND BOG-IRON ORES

Pliny, *Nat. Hist.*, bk. xxxiv, sect. 41, wrote :—' Ferri metalla ubique propemodum reperiuntur . . . Ratio eadem excoquendis venis. In Cappadocia tantum quaestio est, aquae an terrae fiat acceptum, quoniam perfusa certo fluvio terra neque aliter ferrum e fornacibus reddit '.

#### *Translation*

Ores of iron are found almost everywhere. . . . The method used for smelting the ore is the same ('as that already described', according to K. C. Bailey's translation). In Cappadocia only the question is raised whether the iron is to be placed to the credit of the water or the earth, for the earth yields iron to the smelter only where the water of a certain river has flooded it (and not otherwise. E.W.H.)

K. C. Bailey, par. 142.

Carbonate ores of iron in presence of carbonic acid and moisture are broken down into the hydrated sesqui-oxide of iron, known as brown haematite or limonite. The sesqui-oxide is soluble in water,

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and is deposited by bacteria in the form of silt in presence of vegetation (marsh plants, etc.) and still water. Lake- and bog-iron ores are both the result of the same natural process—but the latter require prolonged roasting, whereas the former need only washing and drying. The ores are phosphoric and contain greatly-varying quantities of manganese. Their smelting, therefore, requires careful temperature regulation in order that the impurities in the ores may be retained in the slags and not communicated to the iron. To secure this result the fuel employed in northern Europe was green wood and not charcoal.

Pliny's statement may fairly be considered as referring to these water-carried bacterially-deposited iron ores, for of no other commercial iron ores can it be predicated that they are carried in solution and periodically redeposited.

The district referred to is presumably the iron-bearing region of the Taurus and Anti-Taurus range in Cilicia which, according to Gowland, has a claim to be considered one of the earliest sites of commercial iron working.\* The river in question may be the Pyramus which divides Cappadocia and Cilicia and which brings down from the Taurus great quantities of silt. Doliche in Commagene was a town early noted for its iron smiths. The entire subject, however, of the distribution, method of deposition and history of the utilization of these bog-iron ores badly needs investigation. They appear to have been used in preference to mined ore in all localities in which they have been found in sufficient quantities.

E. WYNDHAM HULME.

### EARLY IRON-SMELTING IN EGYPT

The terrestrial origin of the two iron pieces found in the Pyramid of Cheops (*c.* 2900 B.C.) and the Abydos grave (*c.* 2500 B.C.) having been finally determined (ANTIQUITY, Sept. 1936, pp. 355-7) it will naturally be asked from what region did Egypt acquire its ores and by what process was malleable iron obtained from them. These questions have been answered by Herr Bergrat Prof. H. Quiring, in a paper entitled 'Die Herkunft des ältesten Eisens und Stahl' contributed to *Forschungen und Fortschritte*, 1933, ix, 126-7. The paper is based upon an address to the Prussian Academy of Sciences in February 1933.

Prof. Quiring states that the Nile sands, and in particular the gold bearing gravels and sands of Nubia, contain grains of magnetite ( $\text{Fe}_3\text{O}_4$ ) of high specific gravity, and of iron content up to 65 per cent.

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\* See also Mr G. A. Wainwright's 'The Coming of Iron', with map. ANTIQUITY, March 1936.

## NOTES AND NEWS

Investigations conducted by Prof. Dr v. z. Mühlen in Abyssinia and South Nubia between 1929 and 1931 show that about half of the residues obtained from gold-washing consists of magnetite grains. As a consequence of the introduction of gold smelting into Egypt towards the end of the predynastic period the smelters were now able to use the finely divided leaflets of gold as well as the heavier particles. The Nubian gold-washers, therefore, sent their mixture to be separated in Egypt. As a result of smelting the fine gold and magnetite grains together in crucibles, in a reducing atmosphere obtained by the combustion of Spreu (*i.e.*, the chaff of clover and straw), an iron-rich slag was formed above the liquid gold together with a layer of pasty iron. The latter was immediately available for forging.

This investigation appears to account satisfactorily for the peculiar features of the early iron manufacture in Egypt, *viz.*, its diminutive output and its unprogressive character, the high value attached to the metal as evidence by its association with gold in jewellery, and its use for beads, finger rings and other small articles. An excellent summary of the iron question, including an abstract of Prof. Quiring's address, will be found in Herr A. W. Persson's 'Eisen und Eisenbereitung in ältesten Zeit', 1934. It forms Bulletin VI of the Société Royale des Lettres de Lund, 1933-4, but can be obtained separately.

E. WYNDHAM HULME.

## A CAUSEWAYED EARTHWORK IN WEST KENT

Any addition to the list of causewayed camps is of interest, and none has hitherto been recorded from Kent. The earthwork itself has been known for a considerable time,<sup>1</sup> but its causewayed character has escaped record. Recognition has probably been hindered by a contemporary reference to the construction of an earthwork in this neighbourhood in Elizabethan times,<sup>2</sup> but if this refers to any part of the site it must be to the bank and ditch (C D vertical about 3 ft.) marked 'Elizabethan Earthwork' ? on the plan.

The camp (long. 51°22'0" N; lat. 0°0'35" E) stands on a small promontory, about 300 feet above sea-level, projecting westward from the gravel plateau of Hayes Common, and overlooking a large area of

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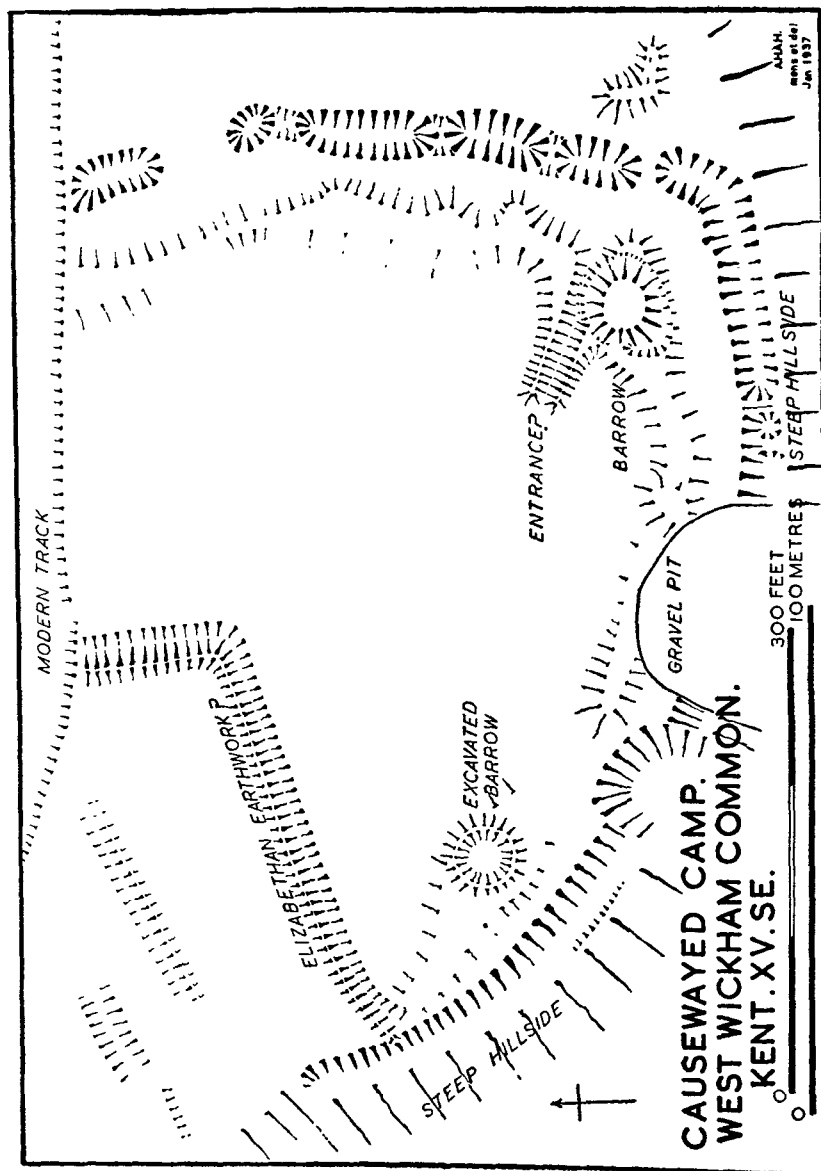
<sup>1</sup> W. M. Flinders Petrie, 'Kentish Earthworks'. *Arch. Cantiana*, 1880, XIII, p. 13.

The plan is on a scale of  $\frac{1}{12500}$ , which is too small for certainty, but the causeways seem to be shown, although they are not mentioned in the text.

<sup>2</sup> See *Victoria County History of Kent*, vol. I, p. 402.



# ANTIQUITY



## NOTES AND NEWS

open chalk country. Flint implements are common in the district, and on Hayes Common itself is an extensive series of hut circles associated with small rectangular fields. Nothing is known of their date, and there is no evidence as to their relation to the camp.

The top of the promontory is practically level, but begins to fall away to the northeast beyond the 'Elizabethan Earthwork'. Any remains on the north side have been destroyed by a road. On the south, the hillside falls very steeply, and has been dug out at the top to form a flat terrace, with a steep scarp, six feet or more in height, above. To the east, after passing two old pits which have mutilated the south side, the terrace and scarp gradually become a ditch with two small causeways. The ditch rapidly deepens, and then turns north to cross the neck of the promontory. In this north-south ditch there are five causeways of varying breadth. Three dip to about 18 inches below the ground level, the other two are level. The ditch itself is flat-bottomed and varies from about 4 feet to 6 feet in depth. The material from the ditch has been deposited in vague, low, amorphous mounds well back from the edge of the ditch. Except near the supposed entrance these seldom exceed two feet in height, and can never have been of any defensive value. Generally there is a small projection adjacent to each causeway.

Opposite the wide level causeway near the northern end the bank is continuous, but at the smaller level causeway near the southeast corner an elaboration of the plan suggests a probable entrance. Outside the ditch is a low mound, roughly L shaped. Inside, the low bank increases in height to about three feet, and a straight ditch, the bottom of which is about natural ground level, passes through the line of the bank and extends into the interior of the camp, bounded by two banks about 2 feet high. A bowl barrow, surrounded by a ditch, has been constructed on the bank, partly obscuring the straight entrance ditch. Another barrow, further to the west, has at some time been completely gutted, unless it is a pond barrow.

The causewayed ditch, and the barrow placed on the bank, both suggest that the earthwork is Neolithic, but it is to be hoped that it may prove possible to verify this by excavation.

It is possible that both the 'Elizabethan Earthwork' of the plan and the bank alongside 'Modern Track', which overlies the northernmost (preserved) portion of the causewayed ditch are ancient field banks, similar to many others on Hayes Common, which have been referred to above.

A. H. A. HOGG and B. H. ST. J. O'NEIL.

## ANTIQUITY

### GOATS FROM UR AND KISH\* (PLATES V, VI, FIGS. 1-6)

The excavations at Ur of the Chaldees, directed by Sir Leonard Woolley on behalf of the British Museum and the University of Pennsylvania, revealed a striking allegorical sculpture of the afterworld. I refer to the so-called ram, now famous throughout the archaeological world, found in the grave of Queen Shubad, who was interred with her whole household, ministers and court ladies and with great riches and many costly trinkets.

This superb sculpture is of a 'ram' reared upon its hind legs, the forelegs bound by a costly chain to a little golden tree. The basic material was of wood; the heavy gilding of the head, the curiously screw-shaped horns, the ears of lapis lazuli and the mother-of-pearl hair falling off the back, were still well preserved at the time of excavation (FIG. 1).

Woolley has already indicated that in this motif there is a forerunner of the portrayal of the Biblical 'ram caught in a thicket by his horns'.<sup>1</sup> From the classical form of the horns the animal represented was considered as a mythical creature—the invention of a Sumerian craftsman's fertile imagination. For example, in 1935 the *Journal of Heredity*<sup>2</sup> published a photograph of this object with the title 'Portrait of a Ram'. After careful investigation, the writer can state that the animal represented is a goat and not a ram. In the sculpture there is a pronounced beard of lapis lazuli, and sheep never possess beards. Furthermore, the horns of the goat from Queen Shubad's grave are directed diagonally upward and are sharply twisted. This is in direct contrast to sheep's horns, which have flat or rounded frontal portions, with an outward to downward directed spiral axis.

Even if the sculpture could be proved conclusively to be that of a goat belonging to the species *Capra prisca*, one would be unable to cite for comparison any even vaguely similar variants from the many forms of domesticated or wild goats hitherto known. The type was unusual and remained completely unknown until recent times.

This apparent inconsistency caused the writer to search for similar forms of *Capra* in the cultures of Mesopotamia, Egypt and the Indus Valley. From available data the seals of Mohenjo-Daro, Harappa and

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\* We wish to acknowledge with thanks the help of Mr Henry Field (Field Museum, Chicago) in obtaining this note. EDITOR.

<sup>1</sup> Genesis, xxii, 13.

<sup>2</sup> November 1935, xxvi, 11, cover illustration.

## NOTES AND NEWS

Susa yield no clues. On the other hand, in the middle and upper field of the standard of Ur this same *Capra* is represented in a naturalistic pose, reared up in front of a bush. In the central section this same animal can be recognized as forming part of a tribute of livestock, which included an ox and two sheep. The repeated portrayal of one type of goat suggested that it might well represent a species of *Capra* which lived in Ancient Mesopotamia. For the time being, however, no further parallels could be found in the Land of the Two Rivers.

A search among the large animals represented in Ancient Egypt brought a welcome surprise. In the plates published by Rosellini<sup>3</sup> there often appears this same goat in the period attributed to Beni Hassan (about 2000 B.C.). This goat, however, is fattened and does not exhibit the heavy wool of the Ur specimens. There may well be a difference in stylistic representation of the Beni Hassan animals. In one case the goat is standing on its hind legs between two men. This pose strikingly resembles the Ur sculpture (FIGS. 1, 2).

Further investigations revealed that the animal portrayed in the Shubad sculpture was kept in large herds as late as the seventeenth century of our era on the shores of the Bodensee (Lake Constance) and in Vorarlberg. The *Emser Chronik* refers to the same animal and even prints an excellent woodcut of the goat and its remarkably twisted horns. In the general description the animal is clearly differentiated from another short-horned goat with spike-like horns (FIG. 3).

The work of Professor Magliano of Messina brought a further surprise during the continued research on the goat-like nature of the Shubad sculpture. In 1930 he published a paper upon a goat with curious spiral-shaped horns occurring at Girgenti in Sicily. On account of this peculiarity, Magliano named it *Capra girgentana* (FIGS. 4-6). We see in this paper the same type of goat shown in the sculpture found in Queen Shubad's grave, attributed to the early portion of the third millennium before the Christian era, still living in herds in Sicily.

There is one final link in the chain of evidence. During the excavations at Kish in Iraq, conducted from 1922-1933 by the Field Museum-Oxford University Joint Expedition,<sup>4</sup> part of the great temple complex of eastern Kish, known as Inghara, was uncovered to virgin soil. The entire deposit was approximately seventeen metres in thickness.

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<sup>3</sup>Ippolito Rosellini, *I Monumenti dell'Egitto e della Nubia* (Pisa, 1834).

<sup>4</sup>Under the supervision of Professor Stephen Langdon of Oxford University.

## ANTIQUITY

During the season of 1927-1928 Mr Louis Charles Watelin, Field Director, was assisted by Eric Schroeder, and Henry Field who, as physical anthropologist, was in charge of salvaging human skeletal material for study. The nature of the soil, combined with the dampness of the deposit, preserved poorly the human bones, though a representative series was obtained. Field also collected animal bones for the study of the fauna. At the close of the season these human and animal bones from the Early Dynastic levels (c. 3000-2530 B.C.) were sent to the Field Museum of Natural History, Chicago.

In 1935 when I visited the Field Museum, the question of the identification of the Kish fauna interested me and I accepted the invitation to conduct the studies in the Hochschule für Bodenkultur, Vienna, where there is a wealth of comparative material. Among the bones were 13 fragments which when joined together formed a horn 17 centimetres in length (FIG. 5). This horn belonged to a goat, *Capra girgentana*. Furthermore, when the Kish horn is compared with that portrayed in the Ur sculpture there remains no doubt regarding the identity of the two animals. Thus we have actual proof of *Capra girgentana* living about 3000 B.C. at Kish and reproduced in sculpture by a more or less contemporary craftsman at Ur of the Chaldees. Woolley's 'ram caught in a thicket' was not a flight of fancy on the part of a Sumerian artist but an actual representation of a then living *Capra girgentana*.

The forgoing example shows with great clarity the importance for excavators to gather meticulously all animal bones for comparative study. In this manner we may gain a better understanding of the perceptive qualities of ancient artists and craftsmen. But above and beyond this, we have clearly widened our biological horizon by means of this case. Through the efforts of archaeologists and zoologists we have discovered a new domesticated animal living in Mesopotamia approximately five thousand years ago, a goat which we presumed to be entirely unknown until recent times.

Likewise this discovery warns us against considering as imaginary the fantastic and stylized works of Mesopotamian artists. They not only observed things with astonishing precision, but also reproduced them in a masterly fashion. The accuracy of detail, even in regard to the treatment of the wool, can hardly be surpassed.

Thus, *Capra girgentana*, now a pastoral resident of Sicily, also lived in Mesopotamia at the dawn of the historical period.

WOLFGANG AMSCHLER.

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### THE PYRAMIDS OF MEROË IN A JAPANESE COLOUR-PRINT (PLATES VII, VIII, FIGS. 1-4)

In Mr Basil Stewart's beautiful collection of Japanese colour-prints is one of exceptional interest. He has already published it as the frontispiece to his book *History and Significance of the Great Pyramid*, and has kindly allowed its reproduction (in half-tone) here. It is extremely rare, and in all his years of collecting and study Mr Stewart tells me he has never seen another copy. Mr Murakami, the Japanese art dealer of New Oxford Street, London, says the same. The print is, thus, perhaps the rarest work of that rare artist, Utagawa Kuninaga.

Not much is known of Kuninaga's life even yet, but since the appearance of Mr Stewart's two books, *Japanese Colour Prints*, and *Subjects Portrayed in Japanese Colour Prints*, a little more has come to light from Japanese sources. Mr Stewart tells me that it now appears that he worked between 1801 and 1829, in which year he died, aged about forty years. His picture of the pyramids was drawn, therefore, during the 214 years of seclusion from 1640-1854, when in Mr Stewart's words 'no Japanese subject was allowed to leave the country on pain of death (if he returned), and intercourse with foreigners was taboo except with a few Dutch traders who were restricted to the island of Nagasaki. These traders were therefore the only link between Japan and the outside world. Japanese ideas of foreign countries were thus confined to hearsay, or gathered from Dutch prints introduced in the course of trade. Hence native-drawn prints in the style of European landscape with attempts at perspective (not recognized in their own canons of design) were known as *rangwa* or 'Dutch pictures'. Mr Murakami has kindly given me the transcription of the title of the print :

<i>shimpan</i> New edition	<i>Oranda</i> Dutch	<i>uki-ye</i> perspective picture	<i>yegi-puto-koku</i> land of Egypt	<i>senkei-kodai</i> pointed tall tower	<i>Kuninaga gwa</i> Kuninaga drew
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in other words 'New edition perspective picture after the Dutch (Oranda=Holland): Pointed towers in the land of Egypt: Drawn by Kuninaga'. It is also stated on the print that it was 'published by Izumiya Ichibei opposite Shimmei Temple in (the district of) Shiba, Yedo'. Yedo was the old name of the modern Tokyo.

Being limited by the date of 1829, it has not been difficult to find the source whence the Japanese artist drew his inspiration, for not many travellers had at that time published views of Egypt or Nubia. A

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search through the more obvious books of travel in Egypt proper, such as those of Vansleb, Pococke, Norden, Denon, and the *Description de l'Égypte*, shows that Kuninaga was not following any of their plates. He was not, therefore, concerned with any of the pyramids in Egypt itself.

Further, there are several things about the picture which make one think of the pyramids of Meroë near Shendy, some distance north of Khartum. Such are the steepness of the slope, which is much greater than in the Egyptian pyramids; the windows high up in the two smaller ones, which are to be found at Meroë but are entirely absent from Egypt; finally the slight base on which each is set, which in its turn may be observed at some of the Meroitic pyramids. Here the field of enquiry is even more limited than in Egypt, for Waddington, Hanbury and Cailliaud are the only travellers to have seen, and published pictures of, the pyramids in Nubia before our print must have been published in Japan. The Englishmen published their illustrated account in 1822 and Cailliaud his plates in 1823. Waddington and Hanbury's plates include nothing comparable to the colour-print, hence we are thrown back on Cailliaud. His plates indeed show a number of features which the Japanese artist selected for constructing his own picture. As is only to be expected of so artistic a nation as the Japanese, the print proves to be no mere copy of any one of Cailliaud's plates. It is self-evident that it could not be, for no Egyptian or Nubian scene ever looked like this. But it soon becomes clear that the artist has incorporated details from Cailliaud's plates,\* from which he has created a picture of his own. Those which interested Kuninaga were between plates xxxvi–xlv of volume 1, showing views of the pyramids of As-sur, now known as those of Meroë. In these all the Nubian details except one will be found (cf. PLATE facing p. 233).

The rocky slope on the right with the small pyramid appearing from behind it is clearly derived from, in fact is almost a copy of, the broken rocks of Cailliaud's plate xxxvi (see FIG. 1). The window high up in that pyramid of the colour-print appears in the pyramid behind the rocks. Those in various pyramids in the middle distance of that plate supply the original for the one in the middle distance of the colour print. Windows appear in a number of Cailliaud's plates (nos. xl, xli, xlii, xliii, xliv). FIG. 4 shows those in the central portion of plate

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\* F. Cailliaud, *Voyage à Méroé, au fleuve blanc, au-delà de Fâzoql* . . . 1819–22, Paris: text, 4 vols., 1826–7; plates, 2 vols., 1823. The plates are lithographs and we regret therefore that it is not possible to reproduce the details with better results. A copy of Cailliaud is in the London Library.—EDITOR.

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xxxvii. The same plate also shows the courses of stones with which the pyramids are built, but not the stones themselves (FIG. 4), exactly as Kuninaga has shown them on his main pyramid.

Plate xxxviii, 2, supplies the original of the man with the dog in the foreground. The animal appears in the same attitude of standing to the left, but looking back at his man (FIG. 2). The man stretches out his hand to the dog in the same way, his other arm is bent to the same angle, and he wears a kilt which becomes the skirt of the Dutchman's long coat. Kuninaga's alterations are to turn the man facing the observer instead of facing the pyramid; to complete him as a Dutchman; to provide him with a long leash by which he holds the dog, and to make him employ his bent arm with this, though very awkwardly, instead of holding the spear which has been omitted.

The drawings, and more especially the sections on plates xliii-v, clearly originate the raised and panelled galleries leading to the pyramids, and their sectional walls, thin pylons, and pillars in some of the forecourts, give the idea of the supporting pillars (cf. FIG. 3). Not understanding where these supposed 'galleries' came from, the artist has cleverly hidden the end of one behind the mountain side, and that of the other behind the main pyramid. These plates also supply the idea of the shutters opening upwards from the windows, for the cavetto cornice is shown there to project forward horizontally (cf. FIG. 3). The very characteristic bases on which the pyramids are set in the colour-print are well shown in a number of the figures on these three plates and also on plate xxxiv (cf. FIG. 3).

The two date palms (see PLATE VII) are no product of Japan, nor do they occur in this run of plates from which the rest of the Nubian details have been taken. In the second volume of Cailliaud's plates there are a number of these trees (plates xv, xxxviii, xxxix, xl, &c), but none which are the evident prototypes of Kuninaga's. He gave his own version of date palms, and very good it is with the heavy bunches of dates hanging under the leaves. If he based them on any of these plates, it is curious that he should have left out the man who is almost always shown climbing up for the fruit. Another, and very strange, omission is the absence of any version of a chapel from the front of the buildings, though these are so very prominent everywhere in the original drawings. Nor has the smooth framing at the edges of the pyramids been transferred to the colour-print.

The artist has introduced much of his own into the picture. Thus, he has transformed Nubians and men in Turkish dress into Dutchmen in



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a version of European dress, supplied the dog with a leash, and filled in the scenery with trees, which are entirely absent from the original pictures of the pyramids. He has also put in the clouds through which the main pyramid pierces, such clouds being a convention frequently found in *Rangwa* prints, à l'eupéenne. Last, but strangest of all, Kuninaga has surrounded the base of the nearest pyramid with a balustrade of cut-out stones. I am quite unable to find anything in the original to account for this. Hence, I can only suppose that the artist, having no idea of the actual wrack and ruin, has thus transformed the loose stones that lie scattered about in nearly all the pictures. Mr Murakami says that this type of thing is used as a parapet to walls in Chinese and Japanese buildings. Most interesting of all the artist's introductions are the roofed look-outs, flagstaves and pennons, with which he has provided the tops of two of his pyramids. They, I am told, like the pine trees and balustrade are essentially Chinese and Japanese. No doubt the provision of these look-outs is the result of Kuninaga's description of the buildings as 'towers', and his very evident view that they were habitable. This no doubt he got from the supposed raised galleries leading to them, the windows, and the presence of men on the top, though actually the latter were the author and his party who had climbed up, as in plates xxxvi, xxxvii, xli. Yet it must not be forgotten that the Nubian pyramids were not pointed like the Egyptian ones, but truncated (Budge, *The Egyptian Sudan* I, p. 152); that several of them, at least at Barkal, are provided with a socket on the flat top (Budge, pp. 156, 160); and that Cailliaud himself discusses its purpose, supposing it to be for some ornament. He says, *Text*, III, 201 'Un trou carré, sur cette plateforme, a dû servir d'emboîture à un ornement quelconque qui couronnait le monument'. In plate XLIV, 11, 12, 13, he supplies a ball on the flat top, and in his general views, plates xxxvi, xxxvii, he puts a ball on top of the perfect pyramid in the centre of the former plate, and on two in the latter (cf. FIG. 4, right-hand pyramid). Europe, thinking of the pyramids as monuments, based an opinion on this that there had been a statue on top (Budge, p. 152), and indeed the figures of the explorers standing on the top sometimes look very like statues (FIGS. 1, 4). Japan, on the other hand, thinking of them as habitable 'towers', thought that there would have been a roof and flagstaff.

Thus, there can be no doubt whence Kuninaga got his ideas. This reveals a point of importance in the study of human intercourse, and also one in that of the spread of knowledge. The first is provided by

PLATE V



FIG. 1 THE 'RAM' OF GOLD, LAPIS LAZULI AND MOTHER-OF-PEARL FROM THE GRAVE  
OF QUEEN SHUBAD AT UR, DATED ABOUT 3000 B.C. (See p. 226)

*After Woolley*

PLATE VI

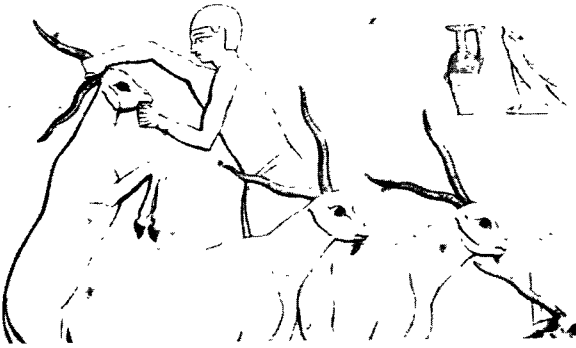


FIG. 2. GOATS OF THE BENI HASSAN PERIOD,  
EGYPT, DATED ABOUT 2000 B.C.  
*After Rossellini*

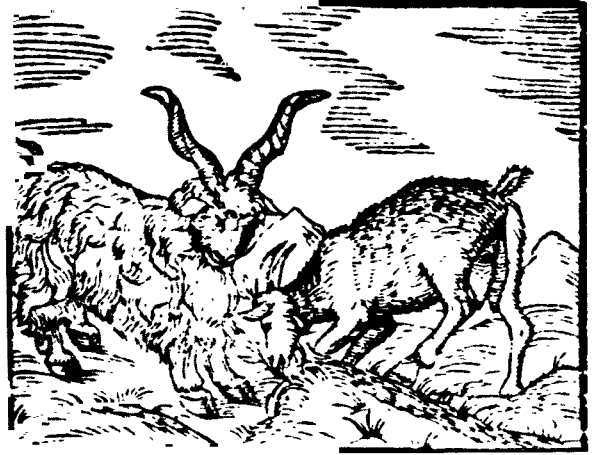


FIG. 3. QUEEN SHUBAD'S 'RAM' FROM THE VORARLBERG



FIG. 4. *CAPRA GIRGENTANA*, DISCOVERED  
BY MAGLIANO IN SICILY



FIG. 5. FRAGMENT OF GOAT'S  
HORN (*CAPRA GIRGENTANA*)  
EXCAVATED AT KISH, IRAQ  
*Photograph by the Field Museum of  
Natural History*



FIG. 6. SKULL AND HORNS OF SICILIAN  
GOAT, *CAPRA GIRGENTANA*  
*Photograph by the author*

PLATE VII



JAPANESE PRINT BY UTAGAWA KUNINAGA. cf. Plate VIII. (See p. 229)

*By courtesy of Mr Basil Stewart, ph Max Mills*

PLATE VIII



FIG. 1. CAILLIAUD, XXVI



FIG. 2 CAILLIAUD, XXXVIII, 2

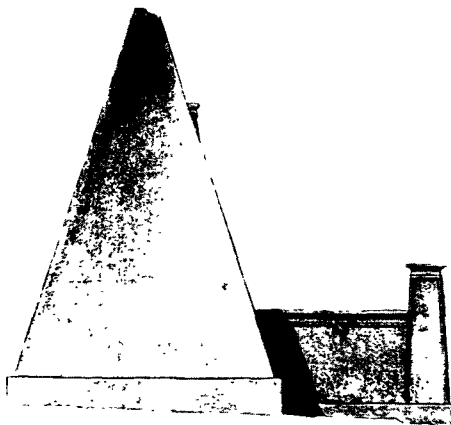


FIG. 3. CAILLIAUD, XLIV, 7

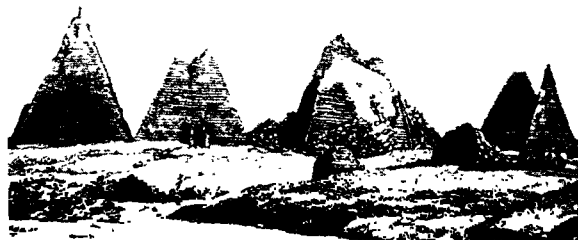


FIG. 4 CAILLIAUD, XXXVII

FROM THE PLATES OF THE PYRAMIDS OF AS-SUR IN CAILLIAUD'S *VOYAGE À MEROË*. (See p. 230)

## NOTES AND NEWS

the dates. Cailliaud's plates were published in Paris in 1823, and Kuninaga died in 1829. Hence, there were only five or six years for the plates to have got out to Nagasaki, thence to the mainland and to have reached Yedo (Tokyo), some six hundred miles away, in time for Kuninaga to draw his inspiration from them and execute his picture before he died. Of course it is always possible that Kuninaga might have visited Osaka, where he might have seen the plates in some studio, for there was a flourishing school of artists there. This would have reduced the journey from Nagasaki by about a third, but as Kuninaga was born and lived in Yedo and the print was published there, it seems unnecessary to suppose anything of the sort. In any case, whether the plates reached Yedo itself or only Osaka, the speed with which they got there from Paris seems very remarkable for those days of sailing ships, and moreover of rigorous exclusion of foreign intercourse from Japan.

But besides the date of the colour-print, its subject is of value in other ways. For instance, it shows the impossibility of preventing trade, which will always trickle through wherever it can find even the smallest loophole. It also shows that no corner of the earth is of necessity shut off from another, no matter how distant the one may be from the other, or what the difficulties in the way may be. Nothing could be more remote from Japan than Upper Nubia, and no obstacles could be greater than the rigid exclusion laws then in force there. It is also one more witness to the part played by modern Europe in bringing unlikely corners of the earth together. An equally curious one was quoted in *ANTIQUITY*, 1936, p. 295. There it was shown that beads, instead of being sent from Cairo to West Africa by caravan as of old, now go round by parcel post to Liverpool and thence to their destination.

Finally, the existence of this print is a remarkable tribute to the interest taken by the Japanese in the outside world. If there had been no hope of a sale for such things, the picture would never have been published. But published it was, in spite of the laws which made it a criminal offence even to study a foreign book (*Encycl. Brit.* 11th ed., xv, p. 237). Moreover, it was not the first of its kind, for Toyoharu had already published a print depicting the ruins of Rome. He was earlier than Kuninaga, for he died in 1814, and like him also worked at Yedo (Binyon and Sexton, *Japanese Colour-Prints*, pp. 49, 50, 90). Let it be remembered therefore, that, as Mr Stewart tells me, these colour-prints were made for the people, not for the educated classes. Hence, even in the days of strict seclusion information about the outside world carried an appeal to the masses in Japan. G. A. WAINWRIGHT.

## Reviews

THE ARCHAEOLOGY OF SUSSEX. By E. CECIL CURWEN. *Methuen*, 1937. *pp.* XVIII, 338, 32 *plates and 89 figures.* 12s 6d.

Sussex is a most fortunate county. Its fifty-mile stretch of the South Downs forms an archaeological region of its own. Cut off by the sea and the impenetrable Weald it can have received its civilization only by a few boatloads of refugees from the Continent and through the ten-mile neck of chalk-ridge and coastal plain connecting it with Wessex on the west. East of the Arun we have an isolated stretch of downland, now largely uncultivated, where the evolution of the old civilizations can be studied undisturbed.

But this is not all. Even the Weald itself, a few years ago described as archaeologically barren, has yielded one of the oldest of the missing links of human evolution, and has also been found to be one of the most fertile fields for the study of the Mesolithic Age. Further, the raised beaches and Coombe rock have added conclusive proof of the pre-glacial age of palaeoliths, and last but not least, west of the Arun, the coastal plain round Selsea is full of the most complicated problems of the Belgic period of the Iron Age.

Sussex too has always been fortunate in the large number of its modern inhabitants who have taken a generous and active interest in its Archaeology—the list of its active societies must rouse envy in other counties—and in nothing more so than in the selection of Dr Cecil Curwen, with his unique knowledge, both acquired and inherited, of everything prehistoric in the County, to write this volume.

With all this material around him it is natural that the scheme adopted is not the useful but rather dry gazetteer form of local history, but the far more alluring plan of a continuous account of the development of civilization in the whole area from its hungry food-gathering stages to the fat luxury of Roman times.

The first two chapters are introductory: the first a clear exposition of the 'methods and aims' of Archaeology and its ancillary sciences from Botany to Helicology, and the second the story of the geological formation of Sussex as we know it—not absolutely necessary to Archaeology perhaps as our nearest ancestors then alive were Saurians and Fishes, but so clear that one can hardly grudge it space.

## REVIEWS

Then comes a chapter on the Early Hunter stage of man, giving the evidence largely from the lucky super-imposition of Coombe rock on the raised beach near Brighton, of the age of the lower palaeoliths, and a perfectly admirable account of the Piltdown skull and its discovery, and of the worked tools found near it ; with the reasons for its assignation to the very beginning of Pleistocene times.

In the writer's student days the record for the heaviest human brain was held by that of a Sussex bricklayer, undistinguished in life except for a love of poaching and of politics ; he was run hard by Cuvier and Thackeray. The Piltdown skull is that of the thickest headed individual in Europe. Is it a fair inference that Sussex is the region of the most rapid cerebral development ?

The Mesolithic Culture after the invention of the bow is admirably treated with copious illustrations of the flint implements and a map of their distribution on the sandy parts of the Weald.

Henceforward, when man had brought from the continent the knowledge of how ' to augment nature's fitful supply of food by the domestication of animals and the cultivation of useful plants ', and to dwell in larger communities, we are taken to the Chalk. The neolithic camps of Whitehawk and the Trundle excavated by the Author are fully described with their pottery and their meagre habitations. The scattered bones and burial at one of these show no respect for the dead and even suggest cannibalism, as some of those in the long barrows of Wiltshire did long ago to Thurnam.

The long barrows of Sussex are not up to the Wessex standard, and some of them are atypical and even doubtful. There are nine at the eastern end of the Downs at no great distance from the camps—a relation not observed elsewhere—and three at the western. The flint mines excavated by the Author and others are vividly described, and stress is laid on their output being far in excess of the local requirements, thus showing the earliest evidence of industrialism and the division of labour. The persistence of palaeolithic forms is noted, as it was during the early excavations at Stonehenge.

We are glad to find the Author emphasizing that this pastoral age, with its scanty agriculture—only vouched for in Sussex by a few sickle flints—was all really neolithic in culture through the Early and Middle Bronze Age, say up to about 1000 B.C., and that this culture was at its best towards the close. The possession of a bronze dagger (probably of foreign origin) by a few chiefs does not really establish the Bronze Age in Britain, though it is too late now to change the time-table.

The so-called Early and Middle Bronze Age is badly represented on the South Downs. The few bellbarrows are, as might be expected, at the Wessex end and disc barrows do not occur. Only eleven beakers, of which eight belong to the rounded B type of the southeast of England, have been recorded.



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It is when we come to the Late Bronze Age that Sussex has led the country in the advancement of knowledge. Dr Curwen carefully describes the three excavated sites of the 'globular vessel' and Deverill-Rimbury people which have revealed their round huts, and above all proved so clearly that it is to them we owe the introduction of the 'Celtic' field-system and our first definite corn farming industry. The chapter ends with a catalogue and well-illustrated description of the Late Bronze finds in Sussex—always '*raisonné*' and never boring—and a table of the county's hoards.

The chapter on 'Iron and the First Cities' comprises the whole 'Iron Age', provisionally dated 500 B.C. to the Roman era. We welcome the omission of the wholly unnecessary and cumbersome word 'Early'. This age he divides for cultural purposes into three phases:

Phase I (500 to 250 B.C.) began with the landings of small bands of refugees of Hallstatt culture, their settlement in open villages with undisturbed extension of the existing agricultural system, the formation of local groups (probably the seeds of tribal organization), and the erection of comparatively slight earthworks as communal refuges in times of danger. All these developments are illustrated and proved by records of excavations.

Phase II (250–50 B.C.) is the era of the strong Hill Forts of which three, the Caburn, Cissbury and the Trundle have been proved to have been permanently occupied and were evidently tribal capitals and central markets. All these, too, are fully described with plans and diagrams showing the construction of their earthworks, their timber revetments, their gates (those of the Trundle are reconstructed in the figure as opening inwards, which would surely be an unlikely weakness); and the objects from the Caburn which throw so much light on the daily life of their occupants are fully illustrated.

These two phases of the Iron Age, to which the 500 years of the Late Bronze Age must, in Sussex at least, be now added, undisturbed as they were on these isolated downs, illustrate very clearly the inevitable political developments from the pastoral through the agricultural, the home industries, and the commercial stages where land is limited and population increases. In Sussex land hunger led to tribal formation and strongly defended capitals, but not apparently to successful aggression for there is no evidence of their having been destroyed by war. In Wessex the same development can be traced but not in such peaceful simplicity. The Iron Age B invasion in the West, and the Belgic Conquest from the north of Hants have 'queered the pitch'. Many of the hill-top camps show signs of strengthening, alteration and reconstruction. St. Catherine's Hill near Winchester had its gates destroyed by fire, but whether by a neighbouring tribe or by the Belgic invaders cannot be decided till the date of the latter is more firmly fixed.

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Phase III (50 B.C. or a little later to A.D. 43) is mainly concerned with this last invasion which got as far as the Selsea peninsula and probably the Arun, but beyond that river had little influence. East Sussex and the Caburn went on undisturbed till the Roman Conquest.

At Selsea there was probably a great Belgic port, now totally submerged, for rich relics and hundreds of Belgic gold coins have been washed up on the fore-shore. Chichester was probably founded to take its place. Iron was first worked, and four new earthworks sprang up in the Weald, two of which appear to have been fortified miners' camps.

With regard to this phase it is much to be regretted that so little space has been given to the numerous minor earthworks, west of the Arun, which must have a considerable bearing on the conditions and problems of the Belgic occupation. Bow Hill, Rewell Hill, Bexley Bushes and the complex cross-dykes of the Ridgeway are only mentioned as existing; while the Wardyke and the linear earthwork which continues its line and together with it cuts off all the high ground of Arundel Park, and others, do not even get the honour of a mention. Some of these are the Author's own children which he first brought to light, and so far have received little more attention than their short birth notices in 'Sussex Archaeological Collections'. It is a bad case of neglect and even of cruelty—to his readers!

The chapter on Sussex pottery and its dating is probably one of the most valuable in the book. But it is too technical for the non-specialist and the Author invites him to skip it—we will accept.

The Roman occupation was absolutely peaceful. The natives remained undisturbed in their downland villages gradually increasing in numbers and prosperity. Villas and smaller Roman houses sprang up along the sunny coast. Chichester, originally only defended by an earthwork, was walled; its rule was extended to all Sussex, and the Caburn was abandoned. The country was well provided with primary and secondary roads: three of them have recently been traced and more remain to be done. The famous Stane Street is claimed to have been made almost immediately after the Conquest on the strength of Hardham, which flourished from A.D. 50, having been a *mansio*—the pre-Roman and Belgic pottery found there being explained as a survival of these types. The more likely explanation would seem to be that it was an inhabited site before it was chosen for a *mansio* upon Stane Street. The Antonine Itinerary of the 2nd or 3rd century does not mention Stane Street, the road from Chichester to London being taken along the coast road, which was probably a strategic necessity for Vespasian's conquest of Wessex, to Clausentum and thence via Winchester and Silchester—45 miles further than by the direct road, along Stane Street. Moreover its unique form where it crosses the ridgeway on

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Bignor Hill does not look like an early construction. However this is a very minor point in a book which is as pleasant to read as it is valuable as a contribution to prehistory.

J. P. WILLIAMS-FREEMAN.

INVENTORY OF THE HISTORICAL MONUMENTS IN WESTMORLAND. The Royal Commission on Historical Monuments, England. *London: H.M. Stationery Office, 1936. pp. LXVII, 302, with numerous plans and illustrations. 30s.*

The appearance of this authoritative inventory of the historical monuments of Westmorland is an event of far reaching importance to students of the history and archaeology of that county. The publication of a volume so wide in its scope, so accurate in detail and provided with such a wealth of plans and illustrations may well be said to bring to a triumphant conclusion the work of the late Mr W. G. Collingwood, who published his concise and carefully documented inventory of Westmorland's antiquities in 1926. Though small in area Westmorland possesses many monuments of special interest to the archaeologist. Among these may be reckoned its early village settlements, its Roman camps at Crackenthorpe and Rey Cross, with later Roman forts and roads, its mottes, castles, pele-towers, manorial halls, and lastly the old sixteenth and seventeenth century farmhouses built by the sturdy 'statesmen' of its dales.

The study of the historical monuments of Westmorland is rendered somewhat difficult by two facts. In the first place, the great ridge which runs across the county from east to west between the Pennines and the Lake hills has through the ages proved a barrier which divided two different cultures, and sometimes two different nationalities. Secondly the nature of the country and the difficulty of access to many of its sparsely inhabited portions makes the task of examining their monuments one of unusual difficulty.

Over these difficulties, however, the staff of the Royal Commission have triumphed. The list of monuments described seems, so far as present knowledge goes, to be complete. The admirable plans provided make it possible to study several hitherto little-known earthworks and village-sites, and the plans of both military and ecclesiastical buildings with hatchings to denote the dates of their various details will be a boon to many readers. The arrangement of the descriptions of the monuments under their parishes in alphabetical order—a practice followed in the Commission's previous inventories of Hereford and Essex—facilitates reference.

Every precaution has been taken to ensure accuracy. No monument is described which has not been actually visited by members of the staff and the work has been submitted before publication to eminent specialists. A special word of praise is due to the fine series of photographic plates with which this

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book is illustrated. Among these photographs not the least useful are those illustrating special types of monuments, *e.g.*, Roman inscriptions, churches, church ornaments, stained glass, chalices, castles, manorial halls, furniture, plaster work, fell-side farms.

Dr R. E. M. Wheeler supplies a valuable introduction upon Prehistoric and Roman Westmorland. He deals in an interesting manner with what is perhaps the oldest of our Westmorland monuments—the long barrow upon Rayseat Pike, adducing examples gathered from a wide field to justify the suggestion that the presence of a cremation trench in this early barrow is but another instance to show that cremation was a recognized alternative burial rite of the late neolithic phase of northern Britain. Of our stone ‘circles’, Dr Wheeler has many interesting things to tell us. It is to be hoped that the excavation planned by the Cumberland and Westmorland Archaeological Society may reveal part of the secrets of the well-known circle, ‘King Arthur’s Round Table’, near Penrith, which, with its ditch, its external embankment and its two causeways, Dr Wheeler compares on a smaller scale with Avebury though whether it was elaborated with a circle or circles of stone or timber is not yet known.

Dr Wheeler gives an interesting account of the remarkable class of remains known as ‘hut villages’, of which over fifty are included in the inventory. These settlements are of uncertain date—some may be relatively modern—but, as the writer contends, ‘they represent as a whole a cultural phase substantially prehistoric in kind and environment’. Though never fortified in the full sense of the word, they are occasionally surrounded by earthwork or stone walling. The huts, many plans of which are provided in the text of the inventory, are of dry stone walling. These settlements were doubtless occupied for the most part by pastoral communities who also practised some form of agriculture, though it is difficult to date the strip lynchets which occur frequently in the neighbourhood of the settlements. Attention is drawn to the Roman remains occasionally found in connexion with these groups of huts.

In the section of Dr Wheeler’s article devoted to Roman Westmorland special interest attaches to his account of the roads, particularly of the remarkable one which, leaving Brougham, pursues its lofty course along the ridge of High Street descending to Troutbeck, presumably to join some hitherto unverified road from Watercrook or Ambleside. This road is the *Brethstrett* or Britons’ Road of the thirteenth century and may have been an adaptation of a previously existing British track.

Professor F. M. Stenton contributes a valuable essay upon ‘Pre-conquest Westmorland’, in which he deals with the obscure and little-known period of the history of the district between the departure of the Romans and the coming

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of William Rufus and his Normans in 1092. We can follow, as far as the scanty evidence will allow, the invasion of the Angles and the subsequent penetration of the Norsemen into the dales. The period closes with the long struggle for the possession of Cumberland and north Westmorland between England and Scotland.

An additional and most welcome introductory article is an account of Anne Clifford, contributed by the editor. That remarkable lady left the impress of her vivid personality upon so many monuments of north Westmorland that some account of her life, about which, thanks to the labours of Dr G. C. Williamson, we have learned much in recent years, is a useful commentary upon many of the historical monuments of the Eden valley.

The Royal Commission has placed us under a lasting obligation by providing us with a book which is not only beautiful in itself but compiled with a thoroughness and attention to detail which will make it an indispensable part of the equipment of the student of our local antiquities for many years to come.

W. T. MCINTIRE.

THE PLACE-NAMES OF WARWICKSHIRE. By J. E. B. GOVER, A. MAWER and F. M. STENTON in collaboration with F. T. S. HOUGHTON. English place-name Society, vol. XIII. *Cambridge University Press*, 1936. pp. LI, 409 and 4 maps. 21s.

The volumes published by the Place-name Society are not only a store-house of information for research workers in many and various branches of study, but they tend more and more to do the research work itself by concisely summing up results for all who may be interested. It remains for the reviewer to summarize the points which seem important.

As might be expected, the place-names demonstrate the two great divisions of Warwickshire, namely the Arden and the Felden; in other words, they help to define the original area of the Forest of Arden. This division is graphically shown by two of the maps provided, which give the locations of *lēah* (and *ge-haeg*) names and of *tūn*, *ingtun* and *hām*, *ingaham* names. The former names, which show settlements in the clearings in the forest, are plotted thickly in the region west of Avon leaving the region to the east almost entirely bare, while the latter group of names, which indicate farms in the more open country, leave a bare space on the part of the map where the forest was. The forest district was hardly penetrated in early times: even 'the usual peasant tenements of the middle ages, the virgates and half-virgates of the open-field system, rarely appear in the earliest charters from this country'.

As mentioned in the preface, Arden was the largest woodland of Anglo-Saxon England. Its name is still attached to various of its villages from

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Tanworth in Arden on the western border of the forest to Weston in Arden (parish of Bulkington) on the east. It also extended from the neighbourhood of Birmingham in the north to Henley in Arden in the south. The name 'Arden' is the same as 'Ardennes', and is derived from a stem *ardu*, 'high', 'steep'. This district, like that in Belgium, is comparatively high country.

To the north of the county, in the forest area, many farms and isolated hamlets were built in small clearings; in the south of the county, in the Felden, the larger villages prevailed with their open fields around them. The word Felden seems to have been applied also to other open country outside the forest. For instance it appears in Fieldon Bridge near Atherstone: this is the bridge over the Anker which leads to the more open country beyond the river in Leicestershire.

In Anglo-Saxon times the woodland separated two cultures, that of the (Saxon) Hwicce and that of the (Anglian) Mercians. The former had moved up the Severn valley from the southwest, the latter up the Trent valley from the northeast. It is suggested that the boundary between them may appear in two place-names, Bishop's Tachbrook and Martimow. In the former, 'Tach', according to Ekwall, derives from an O.E. word *tācels*, 'boundary', which may have referred to the brook dividing the Hwicce diocese of Worcester from the Mercian diocese of Lichfield. Martimow is a field-name which probably derives from *Mercna mere*, 'boundary of the Mercians'. The field is in the parish of Radway, in the diocese of Lichfield, where it adjoins the parish of Kineton, in the diocese of Worcester.

There are but few names in this county which indicate the sites of pagan practices. The only one which may derive from *wēoh*, 'temple', is Willey, near the junction of the Fosse Way with Watling Street. Weoley, now within the administrative county of Warwick, has already been dealt with in the volume on Worcestershire. The name of Tysoe, which lies above the Vale of the Red Horse, is a specially interesting one since it signifies the *hōh* or hill of Tiw. It 'provides for the first time unequivocal evidence for the local worship of the god Tiw in England', and 'proves that the Hwicce, within whose territory the village lay, had reached the south of what was to become Warwickshire at a time when primitive heathenism was still in full vigour amongst them'.

The presence of two of the most important Roman roads, the Watling Street and the Fosse Way, accounts for the various Strettons, such as Stretton Baskerville on the former, and Stretton on Fosse and Stretton on Dunsmore on the latter. Stratford on Avon indicates the presence of an important cross-road which crossed the river here and joined the Ryknild Street at Alcester. The name Bretford presumably signifies the 'ford of the Britons' which took the Fosse Way over Avon. The Romans are also responsible for the names of Alcester,

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the *ceaster* on the Alne, and Mancetter. 'The first part of this [latter] name is clearly a reduced form of the old British name for Mancetter, preserved for us in the Romano-celtic form Manduessedum'.

Scandinavian names are few, since Guthrum's kingdom did not extend west of Watling Street. The few that there are, such as Rugby, are close to the eastern or northern boundary. Celtic and Norman names are also few: Brailes is the most important of the former; Beaudesert of the latter. But the number of names of Anglo-Saxon origin, especially those compounded with personal names as showing their original owners, is very great: there are about ninety, apart from minor names.

Twelve pages are devoted to river-names, with appropriate references to Ekwall's book, to road-names, especially Portways and Saltways—which latter have been a special study of Mr Houghton\*—and to miscellaneous names such as Arden and Dunsmore.

At the end of the book are notes on place-name elements and their distribution. There are nearly fifty examples of the termination *cot(e)*, a higher proportion than in any other county so far dealt with, except Devon. 'There appear to be no examples in Warwickshire of parishes distinguished by east, west, north, south, nor by the dedication of the church'. WILFRID BONSER.

THE TEMPLE OF KING SETHOS I AT ABYDOS. Copied by AMICE M. CALVERLEY, with the assistance of MYRTLE F. BROOME, and edited by ALAN H. GARDINER. Vol. II. Joint publication of the Egypt Exploration Society and the Oriental Institute of the University of Chicago. *London and Chicago*, 1936. *pp.* 2 and 46 *plates.* £5.

The Egypt Exploration Society and the Oriental Institute of the University of Chicago have united in an important publication dealing with the reproduction of all wall-reliefs and inscriptions in the renowned Temple of King Sethos I (c. 1300 B.C.) at Abydos. The architectural and religious historical peculiarity of this Temple is that it is dedicated to seven deities; it has seven entrances, seven slightly ascending corridors pass through the transverse halls, seven sanctuaries form the finish. The pictures of these seven sanctuaries form the contents of the first two volumes of this magnificent publication. Vol. I was devoted to the three northern chapels, sacred to the god-family of Osiris-Isis-Horus. Volume 2, now under review, contains the pictures of the four adjoining southern chapels dedicated to the gods Amun, Re-Harachte, Ptah, and the deified King Sethos I. The Sanctuary of Amun, the supreme god in the New Kingdom, is in the centre. As in vol. I, the pictures and text—throughout of religious content—are reproduced with remarkable clarity from

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\* See Trans. Birmingham Archaeol. Soc., vol. 54.

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drawings of photographs after most careful collation from the originals by Gardiner and de Buck. Some of the photos, and particularly a few exceptionally beautiful coloured plates, show clearly the artistic form and high quality of these reliefs. These reliefs of Sethos I, although belonging to an art-epoch later than the renowned Amarna period, are some of the most delicate works that Egyptian art has ever produced. We should be grateful to Miss Calverley, who, in the large coloured plate 11, gives us a splendid example of her ability as a painter, and to her collaborator, for this gift, and we hope that future volumes will likewise bring us material for learning and pleasure for the eye. A. SCHARFF.

HISTORY IN THE OPEN AIR. By HENRY JOHN RANDALL. *London : Allen and Unwin, 1936. pp. 164. 4s 6d.*

The pioneer and his followers in any branch of learning make their conclusions known to only a small body of experts in that branch ; inevitably therefore some one must take the important step of passing on the accumulated knowledge, in some palatable form, to that fluid and capricious body known as the ' general public '. This popularization is valuable, since the writer must have at least a general knowledge of the subjects with which he deals, and an ability to describe difficult things in a simple but not childish way.

Mr Randall would never, one imagines, regard himself as belonging to the order of pioneers ; but he can with justice claim a very high place in the ranks of those who popularize, in the best sense, the knowledge of the specialist. Throughout, whether writing of roads, of villages, of the requirements of archaeology, or tilting with windmills like Mr Belloc, he shows a gusto and manifest enjoyment of his subject which are equally commendable. The articles published here are all based on sound common-sense, and urge the claims of the practical archaeologist ' this side idolatry '.

The popularizer is always faced with the task of making adequate generalizations from particular facts ; and in this respect Mr Randall sometimes nods. For instance, the description of the run-rig system on p. 83 is in the past tense ; but this system still survives in the northwest of Scotland (an interesting case from Skye appeared in the Scottish papers during last summer). Again, while the first element in Walcote and Walton may be ' serfs ' or ' Britons ', it may also be ' wood ', ' wold ' or ' wall ', or even ' stream ' (see Ekwall, *Oxford Dictionary of English Place-names*, p. 471), and in Scotland also ' spring '. Further, house-names are not so useless as may seem at first sight ; a semi-detached residence named ' Blairgowrie ' may be significant not only of the mentality of the owner, but also of his place of origin.\* To Bradley's classification of place-

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\* Or of the man who built it. But in either case the number of emigrants must be colossal !  
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names as either easy or obscure, and Mr Randall's addition of names which appear easy but are really difficult, we may add a fourth class, of words which look so easy that they have been thought difficult, but are really easy—a sort of 'double bluff'. The classical example of this is the small hamlet of Beeswing, in Dumfriesshire, which was tortured into every shape by philologists, till it was discovered that, in a house-that-Jack-built way, the hamlet was called after an inn which was bought and named by a man who had successfully backed a horse called Beeswing!

One point more. In a popular or semi-popular work, examples are necessary; they are as indispensable, in their own way, as diagrams or maps; both are lacking here.

A. MACDONALD.

**LINKS IN THE HISTORY OF ENGINEERING AND TECHNOLOGY FROM TUDOR TIMES:** the collected papers of RHYS JENKINS, formerly senior examiner in the British Patent Office. *Printed for the Newcomen Society, at the University Press, Cambridge, 1936. pp. x, 248, 7 plates and 26 text figures.*

Since the formation of the Newcomen Society in 1920, of which Rhys Jenkins was a founder member, the history of Engineering and Technology has become recognized as a subject well worth study. In this province the name of Rhys Jenkins has been long pre-eminent, and he holds an established reputation for engineering knowledge, sound judgment and wide research, and above all for historical accuracy. The volume has been published by the Society as a token of regard, and to collect in accessible form articles published in many periodicals. Jenkins's researches covered a wide field and much of his material was gathered from little known sources. The industries dealt with were studied on the spot, and local information made of full use. His writings are also models of modern methods of historical research.

The contents of the volume are grouped under the headings of Mechanical Technology, Steam Engineering, Foundry Work, Hydraulic and Sanitary Engineering, and Industrial and Economic History.

The first section begins with the history of the treadmill, with special reference to an early sketch of a man-power engine for which John Payne obtained a patent in 1573. Then follows an account of the iron slitting-mill, largely used between 1600 and 1830 for producing small rods for nail-making. Connected with this is a biography of Bevis Bulmer, an English mining engineer who flourished between 1586 and 1610. The fourth paper deals with the Vauxhall Ordnance Factory of King Charles the First, with which the Marquis of Worcester and Sir Samuel Morland were afterwards connected. The site was purchased in 1629, and an inventory of the establishment, taken in 1645,

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is preserved in the Record Office. Interesting references are made to leather guns, multiple-barrel guns, and models of perpetual motion. Other papers and notes deal with the use of fast-and-loose pulleys for disconnecting machinery from prime movers, railways in the 16th century and the origin of the spring balance.

The history of the steam engine occupies considerable space and includes Jenkins's masterly lives of Savery and Newcomen.

Some interesting particulars of ironfounding are given. The earliest known iron casting in this country dates from the 14th century, and the earliest reference to an iron foundry concerns one at Buxted in 1491.

The making of boilers for steam engines is traced from the time of Savery, when they were of copper. Small hammered iron plates were in use as early as 1726, and Smeaton was making complete iron boilers in 1772 ; in 1790 rolled iron plates were available.

The papers on Industrial and Economic History begin with a very complete history of paper-making in England from 1495 until 1788. The first mill was set up by John Tate at Hertford about 1495 and the vicissitudes of the trade are fully recounted and various patents described. The Hollander, or rag-engine, which displaced the old stamping machine, was introduced into England about 1750. The alum industry in England during the 15th and 16th centuries is dealt with in detail. Until about 1450 most of the alum consumed in Europe came from Asia Minor, while the earliest recorded attempt to make it in England occurred in the reign of Elizabeth. The history of the tinplate industry in the Neath district, where it was started early in the eighteenth century, is one of the most informative in the volume. A useful feature is the list of patents granted during the Commonwealth and Protectorate, which do not appear in the printed indexes of the Patent Office.

Almost every article in the volume reveals an intimate knowledge of the history of the inventions described and Mr Jenkins has made them of additional value by the results of his examination of original records preserved in public and private collections. He has used every kind of material which throws light on the subjects of his various papers. The illustrations selected for the volume are of great interest.

E. A. FORWARD.

**ENGLISH CHURCH SCREENS :** great roods screenwork and rood-lofts of parish churches in England and Wales. By **AYMER VALLANCE**. *B. T. Batsford*, 1936. 25s.

Those who have long been awaiting Mr Vallance's book on screens will not be disappointed. He treats the subject from a structural point of view, allotting a chapter each to the great rood, the celure, the tympanum and doom, rood-windows, screens and the rood-loft. In other chapters he deals with local

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types and peculiarities ; gold and colour decoration ; dates, donors and craftsmen and the post-Reformation history of screens. The information given is founded on a deep study of local and contemporary documents, references to which are given, while the magnificent collection of photographs and drawings illustrates every aspect of the subject. A minor defect of the book is the author's habit of referring to illustrations without giving the pages on which they occur. It is also unnecessary in a book dealing with such a typically English subject as parish church-fittings to use the abominable word 'Ambonoclast' while 'oxotic' (p. 54) is presumably a misprint. The list of plates arranged under counties is a useful feature, and the coloured reproductions of medieval paintings are a great embellishment to a volume which will give delight both to those in quest of knowledge and to those who love beauty. DINA PORTWAY DOBSON.

CORPUS VASORUM ANTIQUORUM. United States of America : University of California. Fascicule 1, by H. R. W. SMITH. *Harvard University Press*, 1936. *pp.* 60, and 62 *plates.* 22s 6d.

The collection described in this fascicule is at Berkeley. It was acquired largely through the generosity of Mrs Hearst, mother of William Randolph Hearst. The bulk of the finest vases are her gift.

The period covered is from the Geometric to the 4th century and all the vases except for a small Etruscan group are Greek. Among them we notice a fine Cuman Geometric oenochoe, a Corinthian plate with a superb central lotus and palmette design, a 'Chalcidian' amphora of merit, a lovely fragment 'bought from a boy at Akraiphia in Boeotia' of an Attic little-master cup with a frieze of stags and sirens, an 'Andrian' cup, and some unusually nice black-figure vases. The editor gives us a lively note on the 'Chalcidian' controversy, and throughout is careful in his descriptions and his facts. Indeed, his text is highly satisfactory and thorough. Attic red-figure is here well represented, though there are no masterpieces. An interesting kylix by the Brygos painter and some works of Makron raise the level. Another kylix showing a woman bathing at a basin is attractive work by a minor artist, and a Nolan amphora of a youthful horseman is a fine acquisition. But the large nuptial lebes of the latest style is a horrid example of the rapidity of the decline of painting. This collection, little accessible to the average European student, is well and faithfully published.

S. CASSON.

VIKING SETTLERS IN GREENLAND. By POUL NÖRLUND. *pp.* 160, *illustrated.* *Cambridge University Press*, 1936. 7s 6d.

There are not many books describing archaeological exploration that one reads through at a single sitting, enthralled and forgetful of the critic's duty ;

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but this is emphatically one of them. Most of us are quite rightly suspicious of excessive praise in a review, and I very much hope I am not paying an old friend of mine an embarrassing compliment when I say that his book is the best and most exciting work of its kind that I have ever read. This is not merely because the story itself, the tragedy of the remote colony of the Norsemen suffering its awful and ineluctable doom, is impressive to an unusual degree; nor is it because the investigation of the settlements produced such unexpectedly dramatic results. It is because the tale is so extraordinarily well told, with a directness and unemotional simplicity that has in no small measure the quality of the antique saga-style at its best. Dr Nörlund has been well served by his translator, Mr W. E. Calvert, for the text is entirely free from the awkwardnesses of expression that we find so often in English versions of Danish and Scandinavian books; and, apart from 'almost never' in the picture-caption on p. 59, which would read more comfortably if written 'seldom', the whole book is a commendable example of dignified smooth-reading prose. In content it is a summary of all the recent writings on the Greenland colony, and it deals with the recorded history of the settlement from its foundation to its final extinction, and the daily life of the bishops and people as revealed by exploration of the ruins of their churches and homesteads. Nörlund's finds are now famous, and there are few who have not heard of the series of medieval costumes that were discovered, though they are no longer 'the only specimens in the world', as Professor Minns says in his foreword, 'of the common folk's clothes from the later Middle Ages'. The book gives a very full account of these remarkable discoveries. The most valuable piece was the walrus-ivory crosier-head of Bishop Jon Smyrill, who died in 1209. This is now believed to have been made in Iceland by a woman, known to be a skilful ivory-carver, who was in the service of Bishop Paul of Skaholt.\* It looks very much like English work and the miniatures of the contemporary Icelandic manuscripts, which have recently been sumptuously published by Dr Hermansson, show how close the connexion was between the medieval art of Iceland and that of our own country. T. D. KENDRICK.

UPPSALA HÖGAR OCH OTTARSHÖGEN. By SUNE LINDQVIST. English summary. *Kungl. Vitterhets Hist. och Ant. Akademien, Stockholm*, 1936. pp. XII, 363, and 25 plates. 25 Kr.

This fat, finely illustrated work is mainly concerned with the three famous 'King's Mounds' at Uppsala, and with 'Ottar's Mound' which lies to the northwest of them in the Vendel parish. These huge tumuli covered the funeral-pyres of the early Uppland kings, about whom considerable early

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\* Icelandic Illuminated Manuscripts of the Middle Ages. (*Corpus Codicum Islandicorum*, VII), Copenhagen, 1935.

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literature exists, and much speculation has been devoted to the identity of the persons buried therein, the work of Birger Nerman, which was largely inspired by Stjerna's studies, holding the field prior to the appearance of this book. Lindqvist agrees with Nerman's attribution of the western mound at Uppsala to Adils ; but he assigns the eastern mound to Egil, and the central one to Aun, in these cases reversing the attributions of Nerman. Ottar's mound is with some confidence referred to the king of that name. The literary evidence upon which these opinions rest should be tested with care by those archaeologists who do not like the new chronology of northern Migration Period antiquities proposed by Lindqvist some years ago and subsequently supported by a very few other brave spirits such as the present reviewer. The evidence is not entirely conclusive ; but the combined force of the Ynglingasaga and the Ynglingatal is of almost irresistible strength in this matter of Ottar's mound, as historians are willing to concede, and all the attempts hitherto made to break the attribution of the tumuli to a small group of Svitjod kings whose central date is *c.* 500 have failed. The result is that Lindqvist reaffirms the early dating of certain antiquities found in the barrows that according to orthodox belief could not have belonged to royalties of so early a period. In this book he wisely refrains from controversy, and seeks to present the evidence of the mounds in a strictly impartial and objective manner. It is a thoroughly sound work, and all archaeologists will appreciate Lindqvist's painstaking scholarship. T. D. KENDRICK.

VORGESCHICHTLICHE KULTURKREISE IN EUROPA : Bilderatlas mit erläuterndem Text. By NILS ÅBERG. *Copenhagen : Levin and Munksgaard, 1936. pp. 80 and 55 plates. 29 Danish crowns.*

The only culture-cycles treated by Dr Åberg are the Nordic and the Danubian. West Europe is ignored (save for the illustration of some Early Bronze Age Irish axes and goldwork) till from La Tène times it can be treated as a Central European colony. The Mediterranean area is equally neglected, save that Dimini is expressly included in the Danubian cycle and a plate (without commentary) is devoted to the ' North Italian development ' during the Bronze and Early Iron Ages. On the other hand the Nordic Cycle of the Stone Age is made to include not only the megalithic cultures of the North Sea—Baltic coasts and their rather doubtful relatives inland (Walternienburg-Bernburg, Globular Amphora and what I call Danordic cultures), but also the battle-axe cultures and even the Scandinavian dwelling-place cultures. So too Mondsee and Laibach, Erösd and Tripolye, like Dimini, are reckoned as groups within the Danubian cycle.

For the Stone Age the Nordic cycle is given pride of place, but the Nordic Bronze Age is summarized in a single plate exposing Montelius' typological

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divisions. The Central European Bronze and Iron Ages are treated more fully, though by typological periods rather than by cultures, on the lines laid down in *Bronzezeitliche und früheisenzeitliche Chronologie*. Even for the Migration Period Continental and British manifestations of the 'Germanic Culture Cycle' are presented before the Scandinavian ones.

All these cultures and periods from the beginning of the New Stone Age to Viking times are illustrated by figures, grouped on 55 plates and presenting type-objects—for the Stone Age primarily pots; for later periods bronzes and art-objects. The figures have been well chosen to give students a convenient conspectus of type-fossils. No plans of graves or dwellings are included, and there are some other odd omissions. For instance, no strike-a-lights are figured, not even those so characteristic of the Roman and Migration periods in the North. Though bell-beakers are grudgingly included, the daggers and buttons distinctive of the culture are omitted. The figures are admirably reproduced, but often excessively small. A graver defect in a work for students is that no scales are indicated and objects of all sizes are set side by side, irrespective of their real magnitudes. So a series of bell-beakers are reproduced, some about an eighth, some a quarter-size, and leading up to a wrist-guard, reproduced half-size so that it looks bigger than the pots.

The text expounds concisely and without elaborate argumentation the interpretations that the author has defended in detail in his numerous books and articles. In the introduction it is insisted that the spread of relics, at first confined to isolated foci, over wider and wider areas need not denote 'the appearance of new peoples in hitherto uninhabited areas, but only the gradual advance of civilization into regions, previously unrepresented, or represented only fragmentarily, in the archaeological material'. Despite this original introduction the discredited theories of Kossinna remain all too prominent in his pupil's exposition. The sound conception, just quoted, is in practice used primarily to justify the thesis of an autochthonous northern origin for the battle-axe cultures. But this theory is being rapidly abandoned. Only this month Dr Schwantes has submitted it to an annihilating criticism in the fourth part of his masterly *Prehistory of Schleswig-Holstein*, and last year Dr Tode published a no less conclusive refutation in Kossinna's own journal, *Mannus*. Again the graphic presentation of the relics from the Nordic stone cists as a final phase of the Stone Age is misleading; the text does not make it sufficiently clear that the Stone Cist Period is really a Stone-Bronze Age coincident with period I of the North European Bronze Age, as Böhm, Forssander, Sprockhoff and Schwantes have recently been insisting. So too, the premature suggestion that the rectangular 'house-plans' of Köln-Lindenthal (actually foundations of barns\*)

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\* See note and illustrations, *ANTIQUITY*, March 1936, pp. 90-1.

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are due to the 'influence' of Nordic houses, like the dwellings at Troldebjerg on Langeland, is just a survival of the old superstition that any long rectangular structure, whatever its function and material, must be Nordic. Dr Åberg has presented us with a handy illustrated catalogue of type-fossils to which a pre-historian, adequately grounded in general theory and familiar with the look of actual relics, can conveniently turn for information on points outside his special province. But students should use it only with caution. V. G. CHILDE.

THE SYNTAX OF THE GENITIVE CASE IN ARISTOPHANES. *By* JAMES WILSON POULTNEY. *Baltimore: Johns Hopkins Press; Oxford University Press, 1936. pp. xv, 235. 16s.*

A genitive in Aristophanes is, to the ordinary scholar, much the same as a genitive anywhere else; and Mr Poultney has not drawn attention to any notable peculiarities in his author. He has divided all the genitives into classes and sub-classes with laboured subtlety. We are inclined to class together as possessive genitives Sophocles' Plays, Sophocles' Son and Sophocles' Socks, but the last only, it seems, is a pure possessive; the first is a genitive of authorship; the second, one of personal relationship—not of origin, which comes four chapters later. Surely consistency demands that the offspring of a man's body should be analogous to the offspring of his mind; why then should parenthood and authorship be discussed in separate chapters?

Undoubtedly, too, some Greeks, like some modern peoples, regarded a wife as a valuable asset or possession; not so Mr Poultney, who classes 'my ducats' under § A, 'my heart' under § B and 'my daughter, wife', etc., under § C. J. F. DOBSON.

HISTORIC CYPRUS: a guide to its towns and villages, monasteries and churches. *By* RUPERT GUNNIS. *Methuen, 1936. pp. 495, 6 illustrations, 7 plans and folding map. 8s 6d.*

The professional archaeologist is always only too willing to welcome the work of the amateur archaeologist or the antiquary, provided that work shows a real capacity for original research, as contrasted with the mere collection of facts from the work of others, and a strict adherence to the usual methods of investigation and research agreed upon as essential to the normal procedure of archaeology. Mr Gunnis' compact book is an admirable example of precisely this kind of work. Resident for some years in Cyprus, he has methodically visited and examined the 670 villages and 1800 churches and chapels of the island and here recorded the results of a meticulous observation. Cyprus need no longer be looked upon as an island, the Government of which neglects, destroys or is oblivious to its superb monuments. This book is issued as a full-dress

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official guide, replacing finally the otherwise excellent guide produced by Storrs, in so far as that guide dealt with the antiquities.

Mr Gunnis is obviously an enthusiast for the medieval and the Byzantine. That is all to the good, for it is precisely those periods that have been most neglected. But he does not ignore the other periods and here consults the official excavators and museum experts to advantage.

But the main advantage of this guide is that no traveller to Cyprus need think that in any place he is in a region devoid of interest. Nor need he think that this is a mere catalogue of places of antiquity and importance. The pages are packed with incident, and with diverting local legend and history, here often recorded for the first time. Indeed, the author can be said to have made a serious contribution to original research in so far as orthodox legend and history are concerned. Students of Byzantine art and ritual will find much material to help them. The author has not missed a single icon of artistic merit or forgotten to note a single local custom of importance. The only subject not referred to is the varied modern Cypriot methods of pottery-making, Cypriot crafts and Cypriot village-architecture, all of which have archaeological significance.

As might be expected, many strange characters flit through the pages. There is Miss Eliza de Lusignan of Lower Edmonton, the last of her line ; Guelph, 4th Duke of Bavaria and Eric I, king of Denmark, who both lie buried at Paphos ; Dr Wolfe who married Lady Georgiana Walpole and lived at Limassol, and later visited Bokhara dressed in a surplice and mortar-board where he was received with that geniality which only orientals can show to the demented. We are told of the entertaining mode of life at Larnaka, where the foreign consuls lived in medieval state in the 19th century for lack of anything better to do ; of the strange tale of St. Nicholas of the cats, which intrigued travellers for so long ; of the surviving paganism of Paphos ; of that putative megalith at the Tekke Um Haram ; and of that splendid Saint, patron of all tax-payers, who rode on a lion to refuse to pay his taxes, and so alarmed the collector that he was exempted—St. Mamas of happy memory. We learn also of the bronze statue at Politiko, which Ross recorded and which the natives melted down ; of the two Phoenix Park murder informers who were sent for their own safety to the only place known to the British Government to be free of Irishmen, who both died at Larnaka of remorse or drink or both ; of the superb frescoes of Asinou, recently saved and published in full ; of the canon presented by Henry VIII to de L'Isle Adam, the Grand Master.

The reader will gather that Mr Gunnis is an observant person admirably qualified to write this book. Remarkably few errors have been noted. On p. 425 the Late Bronze Age is dated a trifle too early and I can find no mention



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of the important Bronze Age tombs of Katydhata, excavated by the Museum. On p. 55 the author notes that a traveller in 1491 refers to an orb as an 'apple', as do Greeks today: here mention should perhaps be made of the widespread legend and prophecy in the Levant of the Kizil Elmas.

The book is an engaging work and the author falls into place with a long line of British travellers in the Levant. He is to be congratulated on a very painstaking and learned book.

STANLEY CASSON.

L'ÉTUDE SUR LE MIROIR ANTÉRIEUR À LA DYNASTIE DES 'HAN'. By SUEJI UMEHARA. Japanese Text, *pp.* 72; French Résumé, *pp.* 20; 39 *plates*, 27 *text-figures*. 1935.

ÉTUDE DES BRONZES DES ROYAUMES COMBATTANTS. By S. UMEHARA. Japanese Text, *pp.* 116; French, *pp.* 6; 126 *plates*, 37 *text-figures*; being Memoirs 6 and 7 of the Academy of Oriental Culture, Kyoto Institute. 1936.

These two books may well be taken together as the subject of both is Chinese bronzes of the sort we used to call Ch'in, which the Swedes call 'Huai' and which Professor Umehara and the authors of the catalogue of the recent Chinese Exhibition call 'of the Warring States', from about the sixth to the third century B.C. They do not form a very large proportion of extant bronzes, and they did not attract attention until in 1923 the late Mr Wannieck brought to Paris the famous find from Li-yu in Shanhsi, but absolutely they must have been made for a long time over a wide area, much longer than the time of the short-lived dynasty Ch'in, much wider than the district of the Huai river.

We have plates of about 150 mirrors, 60 bronzes from Li-yu (pl. I-XXVIII), and another hundred from the Huai, from Hsin Chêng, from Tsin Ts'un near Lo-yang from Shou-chou in An-hui, but mostly without provenance, preserved in Japan or U.S.A., a few in China or France, very few elsewhere. With regard to the mirrors the ornament is at first a mere diaper quite unadapted to the round field and central loop and only gradually assumes a disposition artistically consonant with the form of the object. No mirrors of the looped or any other type previously existed in China and of the words for mirror *chien* means 'a shallow dish', *ching* perhaps 'reflections in water': hence the very important conclusion that the type was imported from abroad, *i.e.* from the Steppe peoples who had it in the seventh century, and, our author thinks, derived it through the Caucasus from Elam. I am inclined to think that it really arose from the Nomads' phalera, which accounts for the loop, not a very convenient handle for a mirror. The type with the mirror in a kind of open-work box is also probably western and has analogies in Greek work, but the handled mirror, though used by the Scyths, did not find favour in China.

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The looped mirror and a squat shape of cauldron seem the only new shapes of bronzes in the style of the Warring States, but the decoration has quite a new character. On the one hand there are curiously naturalistic motives, rather aberrant from the general spirit of the style: it is just these which may find analogies in the decoration of bronzes of the Koban style in the Caucasus and to the south of it. On the other hand there is an extreme stylization, which lends itself to the building up of complicated plaited designs by a combination of simple elements. For this moulds were prepared by the use of stamps and a rich effect reached with ingenuity rather than labour. The stylization recalls that of the Steppe art and is very unlike either Chou or Yin practice.

Umehara declares in his French introduction to no. 7 his belief that the change was produced under the influence of the culture of the west: the figures in the Japanese text are only concerned with Koban axes and the belts from Kalakent whereas the references to literature include the chief books on the Steppes and the Caucasus. We cannot however gather from it just what are the exact points of resemblance. A bronze shoulder-fitting (?) dug up in Korea (p. 104, f. 37) is quite astonishingly like Caucasus work.

The production of both books is admirable, but even in no. 6 the French résumé is very short, in no. 7 it is less than four pages. Again in no. 6 there is a French list of plates and figures, but nothing on the plates themselves. In no. 7 there is in French no real list of plates, and on each of them only very little information. May we not ask the Academy of Oriental Culture to have a little more regard for the desire of occidentals to understand its work?

ELLIS H. MINNS.

SOKNOPAIΟΥ NESOS: the University of Michigan excavations, at Dime in 1931-32. *Edited by* ARTHUR E. R. BOAK. *Ann Arbor*, 1935. pp. 47, 13 plates, 16 plans. \$2.50.

These excavations inform us about a small ancient town in the Fayum near the Quarun lake and at a level some 45 metres below the sea. The ancient name is the 'Isle of Sobek', the Fayum crocodile god: but the site was not in fact an island in antiquity. The centre of the site had long been removed to serve as a fertilizer—the fate of so many Fayum sites—but enough remained to justify these productive and well organized excavations. The main finds of value, apart from the buildings, were papyri, the latest of which belongs to A.D. 250. The town was probably a settlement of Ptolemy II Philadelphos. There are no traces of Christianity and the town remained pagan down to its abandonment in the third century. Of the papyri the principal are a series of customs receipts complete with their seals. No literary remains seem to have been found.

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CORINTH : vol. III, part II. The defences of Acrocorinth and the lower town. By RHYS CARPENTER and ANTOINE BON. The American School of Classical Studies at Athens. *Harvard University Press*, 1936. pp. 313, 242 text-illustrations, 10 plates, map.

The late Director of the American School and a member of the French School at Athens have combined to produce this masterly and detailed study of one of the largest extant medieval fortresses in Greece. Incidentally, since large parts of the fortress are built on early and later Hellenic foundations, the resultant survey gives us also much information of one of the most powerful forts of ancient Greece.

The American School has almost for a generation past made itself responsible for the excavation of Corinth and its district. It has covered the whole pre-historic period as well as the Greek and Roman, and now approaches the completion of its task by a careful and complete publication of the medieval. The museum at Corinth, built and organized by American initiative, is a model of its kind. The clear and beautiful photographs of this volume give the fullest information of the medieval and ancient walls, and some of the views taken from Acrocorinth are of great beauty. This medieval fortress is the first to be thoroughly examined, planned and photographed in Greece. Medievalists will now be able to refer to a standard Italian system of defence with all the relevant literary and topographical material accessible.

THE BIRTH OF CHINA, a Survey of the Formative Period of Chinese Civilization. By HERRLEE G. CREEL. *Jonathan Cape*, 1936. pp. 396, 15 plates and map. 15s.

During the last few years great discoveries have been made in China ; those concerning the Stone Age and the Painted Pottery are fairly accessible to the Western reader ; those made in the tombs of the Han family (not the Han dynasty) have been described by Bishop White in *Tombs of Old Lo-yang* and have led to a new dating of the early bronzes such as is set forth in Karlgren's *Yin and Chou Researches* (reviewed ANTIQUITY, 1936, x, 371) ; but a general statement of results, particularly those obtained by Chinese workers, and an informed survey of the state of our knowledge made by a man familiar with Chinese literature, both the ancient literature and the publications of modern researchers, has been lacking. This is what Dr Creel has given us in a short and popular form, but he claims that popular does not mean superficial, that every statement he makes is exact and well-grounded and he looks forward to giving us the grounds in a technical work—'Studies in Early Chinese Culture'. It is impossible to summarize a closely packed summary, but it may be said that here we find the latest information on the transition from neolithic to bronze

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founded on Li Chi's *Ch'êng-tzû-yai*, the gist of what the famous oracle-bones have yielded, a study of the Shang culture combining what archaeology has lately given with what was known from the old literature, and an enquiry into the real character of the change from Shang to Chou and the coming of the Feudal Age. At the end is a bibliography of some Western and many Chinese works. All this is just what we have been wanting and many of us will await the author's fuller work with impatience. ELLIS H. MINNS.

A KEY TO MAPS. By H. S. L. WINTERBOTHAM. *Blackie and Son*, 1936. pp. 208. 5s.

As Director-General of the Ordnance Survey, Brigadier Winterbotham was concerned that first-class maps should be produced : since his retirement he has made it his concern that such maps should be in the widest possible use. But the use of maps demands not only a measure of intelligence, but a measure of skill : hence this new *Key to Maps*. Addressed to Everyman, it is written in the author's direct, commonsense style, spiced with wit and good humour, already familiar to many listeners as it comes 'across the ether'. No technical knowledge is assumed, but it is taken for granted that the reader has the serious purpose of getting the utmost from the map. Hence the treatment is systematic and thorough. Different types of maps and plans, their scales, projections and conventions are carefully explained, and there are chapters on the actual survey, and drawing, reproduction and printing off of the maps. The motorist, whether at home or abroad, is advised as to the best map equipment, while the Rambler and house-hunter are not forgotten. The sections which will, perhaps, be of greatest value to readers of *ANTIQUITY* in respect of their more specialized interests are those dealing with locating oneself, locating a point, using a co-ordinate card, and 'helping oneself'. Under the last title are included clear practical directions for surveying and plotting additional detail on a map, for applying colour washes, and for map-mounting and map-repairing. All these prove costly if outside professional help is called in, but they are relatively easy to carry out at home provided one knows the right materials and implements to use, and the best order of procedure. Here it is in a nutshell ! And finally the extremely modest price of this useful and friendly guide should not be overlooked. A second edition is already announced. E. G. R. TAYLOR.

THE WORLD OF WALES. By EDMUND VALE. *Dent*, 1935. pp. xiv, 272, with 31 illustrations. 6s.

In this book Mr Vale sets out to provide the English, whether traveller or general reader, with something more than is contained in the usual guide to Wales. The book falls into two parts. The first contains a series of chapters

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which deal in turn with what Mr Vale calls 'Welsh Atmosphere', language, place-names, traditions and folklore, topography and antiquities. The second, called the 'Compendium', contains various sections incorporating useful information such as a series of notes on Welsh castles, and a 'Topographical Anatomy', giving the meaning of the commoner elements in Welsh place-names. Even if on their own ground archaeologists or good Welshmen find cause for grumbling—in the case of the former at least grumbles will be few and of minor character—Mr Vale must be given every credit for having produced a book which stands apart from others whose purpose, avowed or implied, is the same. This was perhaps inevitable. *The World of Wales* is the product of something more than a brief tour undertaken for a series of newspaper articles, and it has behind it not only many years' knowledge of the country and its people, but a deep and genuine interest in archaeology and history which is evident in the research that has gone into the preparation of the historical sections. W.F.G.

BITUMEN AND PETROLEUM IN ANTIQUITY. By R. J. FORBES.  
*Leiden: E. J. Brill, 1936. pp. 109, 54 illustrations. 5s.*

This excellent and compact piece of research largely reproduces, with many additions and improvements, the valuable information already published in a pamphlet by the same author reviewed in ANTIQUITY (December 1935, vol. ix, p. 494). All the ancient references to bitumen and petrol and allied substances are here collected and all instances of their use discussed. The archaeological evidence is full and accurate, covering Mesopotamia, the prehistoric sites of India, and Persia. Bitumen was largely used in the Middle East and India for damp courses and for the lining of tanks and cisterns. A section of the origin and use of Greek fire is of great importance to Byzantinists. It appears that Greek fire was actually projected by a double-action pump of the type invented by Ctesibios as early as 200 B.C. It was thus a true Flammenwerfer. It was also used in grenades. The secret formula was long preserved by Byzantines, but it ultimately reached the Moslems, who used it in sieges, equipping their corps of fire-throwers with asbestos uniforms. By 1400 its use had been superseded by gunpowder and it degenerated into a parlour-firework. In 1139 in Western Europe a decision was made by the Second Lateran Council that Greek fire should not be used against human beings, a decision respected for centuries, but finally abandoned in 1915.

STANLEY CASSON.

# Antiquity

## A Quarterly Review of Archaeology

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### Editorial Notes

A RECENT remark (which it would be unkind to quote) revealed to the writer the fact that the average Englishman is quite incapable of understanding the outlook of the average scientific research-worker. By the 'average Englishman' is meant the person usually described as 'well educated'; and by the 'average scientific research-worker' is meant the person whose main pursuit (whether amateur or professional) is the advancement of knowledge. The subject is worth considering because it is, in the writer's opinion, closely connected with the nature of intellectual activity itself. Of this there seem to be two kinds. The one is passive, receptive, and consists in absorbing knowledge which has already been assimilated by others, such as a foreign language or the parts of a machine. Memorizing plays a large part in such learning (though of course a good memory is invaluable in all intellectual work). The other form of intellectual activity is active and creative, and consists in the discovery of new facts and the fusing of facts (both new and old) into a new synthesis.



The latter activity is the mainspring of human progress, indeed it is one of the chief things which distinguishes human from animal societies. Without discovery we should never have achieved the Age of Stone or advanced beyond it. Is it then at all strange that those whose primary allegiance is given to the advancement of knowledge should find no room for other loyalties of a lower order? and is it not natural that

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they should be obsessed by an enthusiasm that can override obstructions, apathy or even ridicule? Unfortunately human society is not yet organized as such; there exist organizations devoted to the good of humanity as a whole, but they fail to achieve as much as they might because the productive forces of society are directed towards other ends. For example, it would obviously be for the good of humanity as a whole to decrease the amount of mere drudgery in industry, and it would be perfectly easy, technically, to do so; but human society is still grouped into mutually competing units, each with its own survival as the *summum bonum*, and the good of humanity as a whole is a purely secondary consideration, if it is considered at all. Nowhere, outside the unorganized ranks of scientific workers (and not always there) is this the primary governing motive of conduct.



At this stage a voice from the back seats will be heard asking, What has this got to do with archaeology? It has this to do with it—that archaeology is that branch of science which is concerned with the past activities of *man as a species* in different regions of the earth, not with the early history of certain ephemeral modern groups of human society. To take an example, if a new fossil human skull is discovered, we archaeologists are interested, even excited, to discover what new light it may throw upon the evolution of man; but the discovery itself is presented to the public as the ‘oldest Londoner’ or the ‘oldest Sussex man’. London and Sussex mean much more to the readers of the British press than does the evolution of man, about which our educational system has little to say. But it is to the whole world, present and future (and not to the people of Sussex, London or England merely), that the archaeologist who found the skull will consciously address his report.



That does not imply that ephemeral political units may not often determine the sphere of work. Obviously the home region, whether it be village, province or kingdom, will be for many the chosen sphere, especially when that kingdom happens to be an island. Yet even so the exceptions prove that the real urge springs from a deeper source. The leading authority on English place-names is not an Englishman but a Swede. It was a German (not a Turk) who discovered Troy and

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through his excavations laid the foundations of modern methods. It was an Englishman (happily still with us) who laid bare a completely forgotten Mediterranean civilization in Crete. And it was a Frenchman who recently reconstructed the outlines of Roman Syria—practically without excavation.



This brings us to another misconception—the idea that no one can claim to be an archaeologist unless he devotes most of his time to excavation. It is a misconception that is widely held, as the present writer knows. Now no serious archaeologist would ever dream of depreciating the value of excavation, which is the chief instrument of research in his field of activities. It is one of which everyone who claims to be called a fully-fledged archaeologist must have some practical experience. But it is incorrect to imagine that it is the only one. To give a rough parallel, it would be just as erroneous to regard the general practitioner as not fully qualified because he does not spend the greater part of his time conducting operations. To say nothing of museum-work, distribution-maps or photography, there is an immense field in archaeology for mere observation and record. Much of this is quite independent of excavation. None but a pedant would claim that it is never possible to recognize as such a Roman camp or road, a long barrow or a medieval castle-mound without excavating it first; nor in fact is such a claim seriously made. Moreover, there are many monuments, such as sculptured stones and crosses, which cannot from their nature be excavated. But all these can be discovered by the trained eye, their positions plotted exactly on a map, and photographic records of their features made. This done, we may proceed to study their distribution and from it draw valuable conclusions. Or we may study their style and execution (as in the case of crosses) and learn about the art of the people who made them. Work like this *is* discovery and there is unlimited scope for it everywhere.



Here a reminder may be given of the valuable photographic survey of pre-Norman sculpture now being carried out by the British Museum. Instructions for the guidance of those wishing to cooperate have been printed in *ANTIQUITY* (1936, x, 3) and it must suffice now to give the address to which those anxious to help should write (Mr T. D. Kendrick or Dr Ernst Kitzinger, British Museum). An exhibition of



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some of the photographs already sent in was held recently at the British Museum ; and this alone was evidence in proof of the contention put forward above. Excavation, we repeat, is paramount and of central importance, but there are other branches of activity no less enthralling when once the taste is acquired.



The main subject of these Notes has been the relation between the average Englishman and the average research-worker. It was claimed that the one is generally blind to the outlook of the other. On a previous occasion it was suggested that the Universities were themselves not wholeheartedly interested in research ; and as an example the neglect of papyri and inscribed tablets was taken. Out of those remarks arose a desultory correspondence in a University magazine, followed by a private correspondence between the writer and a member of a University Press. The examples were chosen, not, as seemed to be thought, because the writer had some personal predilection for papyri or cuneiform tablets ; but because these objects (with others that could have been mentioned, such as inscriptions on stone) are unquestionably of primary importance in the reconstruction of history, particularly of economic history. The writer still stands by the opinion expressed in the major premise—that the leading Universities are not whole-heartedly interested in research ; nor is he convinced by the facts brought forward that the study of papyri and inscribed tablets is not still comparatively neglected by the University of Oxford (and elsewhere). But it seems that, in citing the example of American Universities he was misled by a personal impression. Neither here nor there does it appear to be regarded as the primary duty of the University as such to encourage research by publishing the results at its own charge. Many of the research volumes which issue from the University Presses, and which the world at large puts down to the credit of the University, are really paid for by other bodies. We do not think it is necessary to say any more.

# The Early History of Writing

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ON the 29th of June, 1910, at the consecration of Westminster Cathedral, a curious piece of ritual was performed called 'The Ceremony of the Alphabet', almost identical with a ceremony which had been witnessed by the London of a by-gone day at the dedication of Westminster Abbey in 1065. *The Times* of 29 June 1910 described the ceremony as follows :

'On the floor of the spacious nave, from the main entrance to the sanctuary, were painted in white two broad paths, which connected the corners diagonally opposite, and intersecting at the centre of the nave formed a huge figure x, or St. Andrew's Cross. Where the lines converged was placed a faldstool ; and here the Archbishop, still in cope and mitre, knelt in prayer, while the choir continued to sing the ancient plainsong of the "Sarum Antiphoner" . . . Meanwhile attendants were engaged in strewing the nave with ashes. This meant the laying of small heaps of the ashes, about two yards apart, along the lines of the St. Andrew's Cross. Beside each heap of ashes was placed a piece of cardboard containing a letter of the alphabet—the Greek on one line and the Latin on the other. The Archbishop then went towards the main entrance, attended by the deacon and sub-deacon, and preceded by the Crucifix carried between lighted candles. Starting first from the left-hand corner Dr Bourne advanced along one path of the St. Andrew's Cross, tracing with the end of his pastoral staff the letters of the Greek alphabet on the heaps of ashes ; and returning again to the main entrance repeated the process on the other path, tracing this time on the heaps of ashes the letters of the Latin alphabet. This curious ceremony is variously interpreted as symbolizing the union of the Western and Eastern Churches, or the teaching of the rudiments of Christianity, and as a survival of the Roman augurs in laying their plans for the construction of a temple, or as the procedure of Roman surveyors in valuing land for fiscal purposes'.

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The ceremony is a reminder that behind all the symbolism of the many religions of the world lies that most ancient and most potent symbol, the symbol of the spoken word. This paper attempts to deal briefly with some aspects of the early history of writing, that most significant of all human inventions which first gave permanence to the achievements of civilization.

We are still a long way from being in a position to make a comparative survey of all the early forms of writing known to archaeology. The Minoan linear and pictographic scripts have not yet yielded up their secret; the proto-Elamite script is still undeciphered; and although astonishing progress has been made with the various scripts which come under the designation of Hittite, it is too soon yet to make a comparative study of the relation of these scripts to the early Egyptian and Sumerian scripts. There is also the new problem of the early Indian script awaiting solution. Hence in this paper we shall limit our enquiry to the beginnings of writing in Egypt and Sumer, with special reference to the new material which has been made available by the publication of Falkenstein's *Archaische Texte aus Uruk* (Harrassowitz, Leipzig, 1936).

The late Sir Grafton Elliot Smith's researches in the development of the brain have shown that the most significant step in the process by which man emerged from the level of the lower animals was the acquirement, by the visual area of the cortex, of a predominance over the areas connected with smell and the other senses. The natural correlate of this increased significance of visual experience was the development of intelligible speech as the most convenient means of communicating experience. At the same time the co-ordination of visual and motor mechanisms which brought man's hand under the control of his eye with a delicacy of adjustment possessed by no other animal made possible another method of recording visual experience. Man developed the power, not only of describing the world of sense-experience by intelligible sound-symbols, but also of portraying it in pictorial form. In the caves of Altamira and Cogul and in many other places are still to be seen fresh and vivid paintings and drawings which show that prehistoric man had developed a very high degree of skill in the representation of those animals which constituted his food-supply. There is a general agreement among anthropologists that the motive for these drawings and paintings was not pleasure but desire. The fact that many of the drawings either mark the vital spot of the animal with red, or represent the animal as pierced with a weapon, suggests that the drawings had a magical purpose. They were intended to secure good hunting.

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It is this power of pictorial representation which seems to provide the first step in the process which led to the invention of writing. There seems to be little doubt that the earliest elements of written speech both in the Nile Valley and in Mesopotamia were pictures of recognizable objects. But a possible alternative source for the beginnings of writing must be noticed. In his book *The Formation of the Alphabet*, Sir Flinders Petrie has collected a body of linear signs or marks on pottery, with regard to which he says : ' Further, the body of signs belongs to the early age, when drawing was of the rudest, and only mechanical abilities were developed in the art. Hence from the psychological point of view it is impossible to presuppose a pictorial source for them. They start at an age when rude marks satisfy the mind by symbolizing the intended meaning, and long before more exact copies of forms were thought needful '. It is a little difficult, in view of the archaeological evidence, to accept the suggestion that linear signs arise in a stage of culture when the power of pictorial representation is still rudimentary. The earliest appearance of anything resembling linear signs occurs in the painted pebbles of Mas d'Azil. But whether these may have been a linear script or not, they are certainly contemporaneous with a highly developed power of pictorial representation both in the flat and in the round.

It seems hardly open to doubt that, given a motive of sufficient interest, prehistoric man, long before the signaries under discussion could have come into existence, was capable of producing pictorial representations of the highest degree of skill.

It is also clear that in the early history of writing a process of detrition, so to speak, may be observed, by which pictures of objects were reduced to groups of linear signs bearing no resemblance to the original pictures. Hence, if Sir Flinders Petrie's theory is well founded, we should have, for Egypt at least, a double line of possible development, as the following words from his book already mentioned suggest : ' It is more likely than not that the mental attitude of thinking of signs phonetically occurred in the same age to the Egyptian with his pictorial hieroglyphs, and also to the dweller in Egypt—whoever he may have been—who used the linear signs '.

It does not seem possible at present to find any certain connexions between the main line of development of writing as seen in the Egyptian hieroglyphic system, and the linear signs referred to. We cannot tell whether they were true phonetic signs or merely marks of ownership. Perhaps when further light on the history of the so-called Sinaitic

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script is forthcoming they may be found to have had a part in the origination of this system of writing.

One more point of connexion between prehistoric art and early picture-writing may be mentioned. In the prehistoric cave-drawings there is a curious difference between the drawings of animals and the representations of human figures. The drawing of the latter is rudimentary and often resembles the rudimentary human figures on the early decorated Egyptian pottery. The drawing of the animals shows that it was not due to any lack of skill that the human figure was so crudely depicted. It seems rather to point to the earliest stage of symbolization, the reduction of the pictorial representation to its simplest terms. An alternative explanation may be found in the fear of maleficent magic.

We have then clear evidence of the very early development of pictorial representation and of its early conventionalization. The general analogy of picture-writing among savage peoples points to pictorial representation as the earliest and simplest method of communicating ideas. We have also abundant evidence for the existence of a pictographic system of writing in use among the early Egyptians and the Sumerians. Hence we shall now go on to examine these early forms of writing to find out what light they throw upon the beginnings of the representation of sounds by visual symbols.







The moment in Egyptian history when we can observe the first emergence of writing as distinct from pictorial representation coincides with the beginnings of the united monarchy in Egypt. It is on the famous slate-palette of a king that, in the words of Dr Alan H. Gardiner,<sup>1</sup> 'we are able to observe the birth of hieroglyphics taking place, as it were, under our very eyes'. The king, whose Horus-name is usually read as Narmer, was possibly the second king of the First Dynasty of the Old Kingdom. His palette, like so many other pictorial representations of the Pharaohs, celebrates the military achievements of the monarch. The greater part of the palette (PLATE I) is occupied with a vigorous representation of Narmer in the act of striking down a vanquished enemy with his mace. There are seven hieroglyphs in different positions on the palette; two of them at the top form the Horus-name of the king, while five others whose phonetic equivalents are uncertain serve as labels to the different figures grouped round the king. But the group of particular interest is the one occupying the

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<sup>1</sup> *Journal of Egyptian Archaeology*, 1915, II, 72.

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right-hand top corner of the palette. The following is Dr Alan Gardiner's description<sup>2</sup> of it :

' The group in the right-hand top corner is of a much more puzzling character ; an ordinary, simple picture . . . it is not. There is nothing, indeed, unpictorial about the representation of the god Horus under the image of a falcon, but the human hand by which he grasps a rope introduces an element of symbolism which is alien to purely pictorial art. This symbolical note is still further emphasized by the bodiless head of a foreigner growing out of a cylindrical object ; but we have not much trouble in concluding that the foreigner is a prisoner, and that the cylindrical object is meant to indicate his land. The six stalks with flowers, on the contrary, would altogether elude our comprehension, were it not that their signification is at once apparent to anyone with a slight knowledge of hieroglyphics ; the veriest beginner could hardly fail to recognize in them the common word , *kho'*(*h'*), meaning " a thousand ". Now there is nothing in the outward appearance of  to suggest the signification " thousand ", and the existence of a word  , *h'*, for a water-plant or some such botanical object makes it obvious that this is a typical case of phonetic transference ;  means a " thousand " simply because the plant it depicts was called in Egyptian by a name closely resembling the Egyptian word for " thousand ". The six-fold  on the palette therefore signifies " six thousand ", and the sense of the whole complex group in which it occurs may be thus defined : " Horus brings to the Pharaoh six thousand foreigners captured within their land ".

' The *ensemble* which centres around the falcon-shaped Horus is supplementary, therefore, to the larger figures below it on the left, and serves to explain the circumstances under which the Pharaoh is enabled to immolate his foes. It would be wide of the mark, nevertheless, to describe this *ensemble* as an early example of writing ; its size and importance prohibit that view, and moreover no particular order of words is suggested, nor yet any specific word except *kho'*, " thousand ". On the other hand it cannot properly be ranked as a picture, since its method of expression is not that of imitative pictorial art, and since it incorporates one undeniable phonetic sign. It occupies a place, in fact, intermediate between picture and writing ; it is neither the one nor the other, but possesses something in common with both. Now what to all intents and purposes is exactly the same subject is represented in magnificent sculptured relief on the walls of the funerary temple of Sahurē, where two rows of divinities are shown leading before the king two rows of prisoners with ropes tied to their arms and waists. But this sculptured scene is not complete in itself ; its meaning is eked out by three lines of hieroglyphic inscription, of which the most relevant line reads as follows : " *Words recited : we have given to thee all the western and the eastern deserts, together with all the nomads and all the Beduin who are in every desert* ". Here we have the last step in the development towards which the group on the palette of Narmer unmistakably points : the differentiation of two complementary forms of expression, the one definitely

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<sup>2</sup> *Journal of Egyptian Archaeology*, 1915, II, 72.

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pictorial, and the other definitely writing. The combination of hieroglyphic inscriptions and pictorial representations is extremely frequent on Egyptian monuments, and is accounted for by the common origin of both and by the fact that they have not yet drifted so far apart as to be incompatible side by side with one another. Hieroglyphic writing is, after all, merely a sequence of small pictures with special meanings attached to them ; and, on the other hand, Egyptian pictorial art shows analogies with the methods of writing which are both striking and significant '.

Here, then, we find the point at which the symbolic expression of ideas, which is writing, begins to diverge from the realistic representation of persons, things and actions.

It is important to note that this vitally significant advance is directly connected with a stage of social development. At a certain level of social progress there is not sufficient motive present to give rise to so complicated a social mechanism as written speech. It is possible, as we can see from a survey of present-day savage societies, for a language to reach a high degree of flexibility and a large vocabulary without any development of writing. But among the ancient Egyptians at the beginning of the Old Kingdom period certain elements in the social situation combined to produce a need which only the invention of writing could satisfy. We have already seen that in the first place the art of pictorial representation arose out of a need, the need of exercising a magical control over the food supply. Early in the Old Kingdom a new and urgent social motive appeared. The disposal of the dead assumed an importance which it has never possessed in any other civilization. The elaborate system of mummification began to develop, and among the many arts which it carried in its train the art of pictorial representation, with a magical significance, became an essential element of funerary ritual. The primary object of inscribing or writing down the words of the spells and incantations which formed part of the ritual of mummification was similarly a magical one. Preserved in the tomb, or about the person of the dead, the written word perpetuated the efficacy of the spoken word. Furthermore, these funerary beliefs and practices centred in the person of the king, and the achievement of a united monarchy produced a social situation of which the invention of writing was the natural outcome. The palette of Narmer shows that the need was arising of a written record to supplement the pictorial representation of the king's exploits, and it is also possible that even here the magical value of the pictured scene and the written word had a place. On the reverse of the palette a scene is depicted in which a bull is goring a fallen enemy, and in the first book of Kings there is an interesting account of the way in which the leader

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of the court prophets assumes a bull-mask and dramatically enacts in a similar fashion the coming victory of the Israelite king over the Syrians. He is engaged in making victory, not merely in predicting it. It is extremely probable that the palette of Narmer served not only as a record of victory achieved but also as a magical means of securing it.

Hence it may be suggested that among the Egyptians the invention or the emergence of the hieroglyphic system of writing is simply the extension of already existing cultural elements to a new social situation. This must be borne in mind when the question of the independent invention of writing in various parts of the ancient world is raised. The earliest texts from Sumer would appear to have no such character as that presented by such a document as the palette of Narmer. While they are connected with a temple and presuppose the organization of a small city-state, they are simply business memoranda, accounts, lists of cattle or articles of trade, of only temporary significance. Some of them, as Falkenstein points out, seem to have been bored through as a kind of cancellation. This would suggest that writing in early Sumerian culture had a more secular and utilitarian motive for its invention. The question of any possible relation between the Egyptian and Sumerian systems of writing will be dealt with later.

Before we go on to speak of the stages of development which appear in the early history of writing in the ancient East it is necessary to give a brief account of the beginning of writing in Sumer for which the archaic texts from Uruk (Erech) give us the material. It has long been known that the cuneiform script characteristic of Mesopotamia, whence it spread over large areas of the ancient East, was originally pictorial. Speaking of the well-known tablet from Kish in the Ashmolean Museum Mr C. J. Gadd says : ' The limestone ' Pictographic Tablet ' from Kish must be regarded for the present as representing the archetype of all Sumerian writing '. (PLATES II and III). On this tablet are a number of signs representing objects, the human head, hand, foot and membrum virile, a hut with a man squatting in it, a sledge, and other signs not clearly determined. Very early tablets from Jemdet Nasr and Fara showed later stages of development in which the pictorial signs were in process of transformation into groups of wedges bearing little or no resemblance to the original forms. But the material from Uruk, consisting mainly of small clay tablets from layer IVb, in the judgment of competent authorities, takes us back to the earliest stage of writing in Sumer so far discovered. With the exception of the numerical signs all the signs on these tablets are pictographic, that is, they are



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representations of objects mostly recognizable, such as parts of the human body, heads of animals, birds, fishes, various kinds of plants, vessels, boats, tools, weapons, buildings, and so forth (PLATE IV). Many of the signs can be identified with later cuneiform equivalents. The writing is, however, too well-developed for us to be able to regard the Uruk material as representing the earliest stage of writing in Mesopotamia. No small period of time must have been necessary for the writing to have reached the form in which it appears on these tablets. It is true that Dr Falkenstein considers them as the earliest written documents (cf. ANTIQUITY, x, 137), but other competent authorities, such as Mr Sidney Smith and Mr Gadd, consider that earlier stages of writing must lie behind the ivb tablets from Uruk.

If we accept the date assigned to layer I at Uruk, namely, the period of Ur-Nanše, about  $\pm 3000$  B.C., and allow about 500 years for the development from ivb to I, we get a date early in the 4th millennium, and possibly earlier than the palette of Narmer.

Hence, both in Egypt and in Sumer, we find a well-developed pictographic writing in use about the beginning of the 4th millennium, and in the light of our present knowledge it is possible to say that in both countries the development of writing follows a very similar course. We must now attempt a brief description of the stages of this development.


As soon as the need for the representation of continuous discourse arises it becomes evident that a number of the vital elements of speech are not capable of pictorial representation. Hence it becomes necessary to invent symbols to represent the sounds denoting pronouns, prepositions, adverbs, inflexions, and all such elements of speech as have no natural pictorial associations.

There are two ways in which this may be done. One such way is illustrated by Pitman's system of shorthand writing where we find an arbitrary allocation of linear signs to sounds; speed combined with ease of reading is here the only consideration. The system is arbitrary in the sense that it is not the result of a natural development of the relation between the signs and the sounds. We have already referred to the theory that the earliest script in Egypt was of this nature, an arbitrary selection of linear signs which never, so far as we know, had any pictorial value. It may be added that there is no evidence for the existence of such a form of script in Mesopotamia. But we do know with certainty that the various forms of script in use in Egypt, down to the purely cursive demotic, all go back to the hieroglyphic system

𐀀𐀁𐀂𐀃𐀄𐀅𐀆𐀇𐀈𐀉𐀊𐀋𐀌𐀍𐀎𐀏𐀐𐀑𐀒𐀓𐀔𐀕𐀖𐀗𐀘𐀙𐀚𐀛𐀜𐀝𐀞𐀟𐀠𐀡𐀢𐀣𐀤𐀥𐀦𐀧𐀨𐀩𐀪𐀫𐀬𐀭𐀮𐀯𐀰𐀱𐀲𐀳𐀴𐀵𐀶𐀷𐀸𐀹𐀺𐀻𐀼𐀽𐀾𐀿𐁀𐁁𐁂𐁃𐁄𐁅𐁆𐁇𐁈𐁉𐁊𐁋𐁌𐁍𐁎𐁏𐁐𐁑𐁒𐁓𐁔𐁕𐁖𐁗𐁘𐁙𐁚𐁛𐁜𐁝𐁞𐁟𐁠𐁡𐁢𐁣𐁤𐁥𐁦𐁧𐁨𐁩𐁪𐁫𐁬𐁭𐁮𐁯𐁰𐁱𐁲𐁳𐁴𐁵𐁶𐁷𐁸𐁹𐁺𐁻𐁼𐁽𐁾𐁿𐂀𐂁𐂂𐂃𐂄𐂅𐂆𐂇𐂈𐂉𐂊𐂋𐂌𐂍𐂎𐂏𐂐𐂑𐂒𐂓𐂔𐂕𐂖𐂗𐂘𐂙𐂚𐂛𐂜𐂝𐂞𐂟𐂠𐂡𐂢𐂣𐂤𐂥𐂦𐂧𐂨𐂩𐂪𐂫𐂬𐂭𐂮𐂯𐂰𐂱𐂲𐂳𐂴𐂵𐂶𐂷𐂸𐂹𐂺𐂻𐂼𐂽𐂾𐂿𐃀𐃁𐃂𐃃𐃄𐃅𐃆𐃇𐃈𐃉𐃊𐃋𐃌𐃍𐃎𐃏𐃐𐃑𐃒𐃓𐃔𐃕𐃖𐃗𐃘𐃙𐃚𐃛𐃜𐃝𐃞𐃟𐃠𐃡𐃢𐃣𐃤𐃥𐃦𐃧𐃨𐃩𐃪𐃫𐃬𐃭𐃮𐃯𐃰𐃱𐃲𐃳𐃴𐃵𐃶𐃷𐃸𐃹𐃺𐃻𐃼𐃽𐃾𐃿𐄀𐄁𐄂𐄃𐄄𐄅𐄆𐄇𐄈𐄉𐄊𐄋𐄌𐄍𐄎𐄏𐄐𐄑𐄒𐄓𐄔𐄕𐄖𐄗𐄘𐄙𐄚𐄛𐄜𐄝𐄞𐄟𐄠𐄡𐄢𐄣𐄤𐄥𐄦𐄧𐄨𐄩𐄪𐄫𐄬𐄭𐄮𐄯𐄰𐄱𐄲𐄳𐄴𐄵𐄶𐄷𐄸𐄹𐄺𐄻𐄼𐄽𐄾𐄿𐅀𐅁𐅂𐅃𐅄𐅅𐅆𐅇𐅈𐅉𐅊𐅋𐅌𐅍𐅎𐅏𐅐𐅑𐅒𐅓𐅔𐅕𐅖𐅗𐅘𐅙𐅚𐅛𐅜𐅝𐅞𐅟𐅠𐅡𐅢𐅣𐅤𐅥𐅦𐅧𐅨𐅩𐅪𐅫𐅬𐅭𐅮𐅯𐅰𐅱𐅲𐅳𐅴𐅵𐅶𐅷𐅸𐅹𐅺𐅻𐅼𐅽𐅾𐅿𐆀𐆁𐆂𐆃𐆄𐆅𐆆𐆇𐆈𐆉𐆊𐆋𐆌𐆍𐆎𐆏𐆐𐆑𐆒𐆓𐆔𐆕𐆖𐆗𐆘𐆙𐆚𐆛𐆜𐆝𐆞𐆟𐆠𐆡𐆢𐆣𐆤𐆥𐆦𐆧𐆨𐆩𐆪𐆫𐆬𐆭𐆮𐆯𐆰𐆱𐆲𐆳𐆴𐆵𐆶𐆷𐆸𐆹𐆺𐆻𐆼𐆽𐆾𐆿𐇀𐇁𐇂𐇃𐇄𐇅𐇆𐇇𐇈𐇉𐇊𐇋𐇌𐇍𐇎𐇏𐇐𐇑𐇒𐇓𐇔𐇕𐇖𐇗𐇘𐇙𐇚𐇛𐇜𐇝𐇞𐇟𐇠𐇡𐇢𐇣𐇤𐇥𐇦𐇧𐇨𐇩𐇪𐇫𐇬𐇭𐇮𐇯𐇰𐇱𐇲𐇳𐇴𐇵𐇶𐇷𐇸𐇹𐇺𐇻𐇼𐇽𐇾𐇿𐈀𐈁𐈂𐈃𐈄𐈅𐈆𐈇𐈈𐈉𐈊𐈋𐈌𐈍𐈎𐈏𐈐𐈑𐈒𐈓𐈔𐈕𐈖𐈗𐈘𐈙𐈚𐈛𐈜𐈝𐈞𐈟𐈠𐈡𐈢𐈣𐈤𐈥𐈦𐈧𐈨𐈩𐈪𐈫𐈬𐈭𐈮𐈯𐈰𐈱𐈲𐈳𐈴𐈵𐈶𐈷𐈸𐈹𐈺𐈻𐈼𐈽𐈾𐈿𐉀𐉁𐉂𐉃𐉄𐉅𐉆𐉇𐉈𐉉𐉊𐉋𐉌𐉍𐉎𐉏𐉐𐉑𐉒𐉓𐉔𐉕𐉖𐉗𐉘𐉙𐉚𐉛𐉜𐉝𐉞𐉟𐉠𐉡𐉢𐉣𐉤𐉥𐉦𐉧𐉨𐉩𐉪𐉫𐉬𐉭𐉮𐉯𐉰𐉱𐉲𐉳𐉴𐉵𐉶𐉷𐉸𐉹𐉺𐉻𐉼𐉽𐉾𐉿𐊀𐊁𐊂𐊃𐊄𐊅𐊆𐊇𐊈𐊉𐊊𐊋𐊌𐊍𐊎𐊏𐊐𐊑𐊒𐊓𐊔𐊕𐊖𐊗𐊘𐊙𐊚𐊛𐊜𐊝𐊞𐊟𐊠𐊡𐊢𐊣𐊤𐊥𐊦𐊧𐊨𐊩𐊪𐊫𐊬𐊭𐊮𐊯𐊰𐊱𐊲𐊳𐊴𐊵𐊶𐊷𐊸𐊹𐊺𐊻𐊼𐊽𐊾𐊿𐋀𐋁𐋂𐋃𐋄𐋅𐋆𐋇𐋈𐋉𐋊𐋋𐋌𐋍𐋎𐋏𐋐𐋑𐋒𐋓𐋔𐋕𐋖𐋗𐋘𐋙𐋚𐋛𐋜𐋝𐋞𐋟𐋠𐋡𐋢𐋣𐋤𐋥𐋦𐋧𐋨𐋩𐋪𐋫𐋬𐋭𐋮𐋯𐋰𐋱𐋲𐋳𐋴𐋵𐋶𐋷𐋸𐋹𐋺𐋻𐋼𐋽𐋾𐋿𐌀𐌁𐌂𐌃𐌄𐌅𐌆𐌇𐌈𐌉𐌊𐌋𐌌𐌍𐌎𐌏𐌐𐌑𐌒𐌓𐌔𐌕𐌖𐌗𐌘𐌙𐌚𐌛𐌜𐌝𐌞𐌟𐌠𐌡𐌢𐌣𐌤𐌥𐌦𐌧𐌨𐌩𐌪𐌫𐌬𐌭𐌮𐌯𐌰𐌱𐌲𐌳𐌴𐌵𐌶𐌷𐌸𐌹𐌺𐌻𐌼𐌽𐌾𐌿𐍀𐍁𐍂𐍃𐍄𐍅𐍆𐍇𐍈𐍉𐍊𐍋𐍌𐍍𐍎𐍏𐍐𐍑𐍒𐍓𐍔𐍕𐍖𐍗𐍘𐍙𐍚𐍛𐍜𐍝𐍞𐍟𐍠𐍡𐍢𐍣𐍤𐍥𐍦𐍧𐍨𐍩𐍪𐍫𐍬𐍭𐍮𐍯𐍰𐍱𐍲𐍳𐍴𐍵𐍶𐍷𐍸𐍹𐍺𐍻𐍼𐍽𐍾𐍿𐎀𐎁𐎂𐎃𐎄𐎅𐎆𐎇𐎈𐎉𐎊𐎋𐎌𐎍𐎎𐎏𐎐𐎑𐎒𐎓𐎔𐎕𐎖𐎗𐎘𐎙𐎚𐎛𐎜𐎝𐎞𐎟𐎠𐎡𐎢𐎣𐎤𐎥𐎦𐎧𐎨𐎩𐎪𐎫𐎬𐎭𐎮𐎯𐎰𐎱𐎲𐎳𐎴𐎵𐎶𐎷𐎸𐎹𐎺𐎻𐎼𐎽𐎾𐎿𐏀𐏁𐏂𐏃𐏄𐏅𐏆𐏇𐏈𐏉𐏊𐏋𐏌𐏍𐏎𐏏𐏐𐏑𐏒𐏓𐏔𐏕𐏖𐏗𐏘𐏙𐏚𐏛𐏜𐏝𐏞𐏟𐏠𐏡𐏢𐏣𐏤𐏥𐏦𐏧𐏨𐏩𐏪𐏫𐏬𐏭𐏮𐏯𐏰𐏱𐏲𐏳𐏴𐏵𐏶𐏷𐏸𐏹𐏺𐏻𐏼𐏽𐏾𐏿𐐀𐐁𐐂𐐃𐐄𐐅𐐆𐐇𐐈𐐉𐐊𐐋𐐌𐐍𐐎𐐏𐐐𐐑𐐒𐐓𐐔𐐕𐐖𐐗𐐘𐐙𐐚𐐛𐐜𐐝𐐞𐐟𐐠𐐡𐐢𐐣𐐤𐐥𐐦𐐧𐐨𐐩𐐪𐐫𐐬𐐭𐐮𐐯𐐰𐐱𐐲𐐳𐐴𐐵𐐶𐐷𐐸𐐹𐐺𐐻𐐼𐐽𐐾𐐿𐑀𐑁𐑂𐑃𐑄𐑅𐑆𐑇𐑈𐑉𐑊𐑋𐑌𐑍𐑎𐑏𐑐𐑑𐑒𐑓𐑔𐑕𐑖𐑗𐑘𐑙𐑚𐑛𐑜𐑝𐑞𐑟𐑠𐑡𐑢𐑣𐑤𐑥𐑦𐑧𐑨𐑩𐑪𐑫𐑬𐑭𐑮𐑯𐑰𐑱𐑲𐑳𐑴𐑵𐑶𐑷𐑸𐑹𐑺𐑻𐑼𐑽𐑾𐑿𐒀𐒁𐒂𐒃𐒄𐒅𐒆𐒇𐒈𐒉𐒊𐒋𐒌𐒍𐒎𐒏𐒐𐒑𐒒𐒓𐒔𐒕𐒖𐒗𐒘𐒙𐒚𐒛𐒜𐒝𐒞𐒟𐒠𐒡𐒢𐒣𐒤𐒥𐒦𐒧𐒨𐒩𐒪𐒫𐒬𐒭𐒮𐒯𐒰𐒱𐒲𐒳𐒴𐒵𐒶𐒷𐒸𐒹𐒺𐒻𐒼𐒽𐒾𐒿𐓀𐓁𐓂𐓃𐓄𐓅𐓆𐓇𐓈𐓉𐓊𐓋𐓌𐓍𐓎𐓏𐓐𐓑𐓒𐓓𐓔𐓕𐓖𐓗𐓘𐓙𐓚𐓛𐓜𐓝𐓞𐓟𐓠𐓡𐓢𐓣𐓤𐓥𐓦𐓧𐓨𐓩𐓪𐓫𐓬𐓭𐓮𐓯𐓰𐓱𐓲𐓳𐓴𐓵𐓶𐓷𐓸𐓹𐓺𐓻𐓼𐓽𐓾𐓿𐔀𐔁𐔂𐔃𐔄𐔅𐔆𐔇𐔈𐔉𐔊𐔋𐔌𐔍𐔎𐔏𐔐𐔑𐔒𐔓𐔔𐔕𐔖𐔗𐔘𐔙𐔚𐔛𐔜𐔝𐔞𐔟𐔠𐔡𐔢𐔣𐔤𐔥𐔦𐔧𐔨𐔩𐔪𐔫𐔬𐔭𐔮𐔯𐔰𐔱𐔲𐔳𐔴𐔵𐔶𐔷𐔸𐔹𐔺𐔻𐔼𐔽𐔾𐔿𐕀𐕁𐕂𐕃𐕄𐕅𐕆𐕇𐕈𐕉𐕊𐕋𐕌𐕍𐕎𐕏𐕐𐕑𐕒𐕓𐕔𐕕𐕖𐕗𐕘𐕙𐕚𐕛𐕜𐕝𐕞𐕟𐕠𐕡𐕢𐕣𐕤𐕥𐕦𐕧𐕨𐕩𐕪𐕫𐕬𐕭𐕮𐕯𐕰𐕱𐕲𐕳𐕴𐕵𐕶𐕷𐕸𐕹𐕺𐕻𐕼𐕽𐕾𐕿𐖀𐖁𐖂𐖃𐖄𐖅𐖆𐖇𐖈𐖉𐖊𐖋𐖌𐖍𐖎𐖏𐖐𐖑𐖒𐖓𐖔𐖕𐖖𐖗𐖘𐖙𐖚𐖛𐖜𐖝𐖞𐖟𐖠𐖡𐖢𐖣𐖤𐖥𐖦𐖧𐖨𐖩𐖪𐖫𐖬𐖭𐖮𐖯𐖰𐖱𐖲𐖳𐖴𐖵𐖶𐖷𐖸𐖹𐖺𐖻𐖼𐖽𐖾𐖿𐗀𐗁𐗂𐗃𐗄𐗅𐗆𐗇𐗈𐗉𐗊𐗋𐗌𐗍𐗎𐗏𐗐𐗑𐗒𐗓𐗔𐗕𐗖𐗗𐗘𐗙𐗚𐗛𐗜𐗝𐗞𐗟𐗠𐗡𐗢𐗣𐗤𐗥𐗦𐗧𐗨𐗩𐗪𐗫𐗬𐗭𐗮𐗯𐗰𐗱𐗲𐗳𐗴𐗵𐗶𐗷𐗸𐗹𐗺𐗻𐗼𐗽𐗾𐗿𐘀𐘁𐘂𐘃𐘄𐘅𐘆𐘇𐘈𐘉𐘊𐘋𐘌𐘍𐘎𐘏𐘐𐘑𐘒𐘓𐘔𐘕𐘖𐘗𐘘𐘙𐘚𐘛𐘜𐘝𐘞𐘟𐘠𐘡𐘢𐘣𐘤𐘥𐘦𐘧𐘨𐘩𐘪𐘫𐘬𐘭𐘮𐘯𐘰𐘱𐘲𐘳𐘴𐘵𐘶𐘷𐘸𐘹𐘺𐘻𐘼𐘽𐘾𐘿𐙀𐙁𐙂𐙃𐙄𐙅𐙆𐙇𐙈𐙉𐙊𐙋𐙌𐙍𐙎𐙏𐙐𐙑𐙒𐙓𐙔𐙕𐙖𐙗𐙘𐙙𐙚𐙛𐙜𐙝𐙞𐙟𐙠𐙡𐙢𐙣𐙤𐙥𐙦𐙧𐙨𐙩𐙪𐙫𐙬𐙭𐙮𐙯𐙰𐙱𐙲𐙳𐙴𐙵𐙶𐙷𐙸𐙹𐙺𐙻𐙼𐙽𐙾𐙿𐚀𐚁𐚂𐚃𐚄𐚅𐚆𐚇𐚈𐚉𐚊𐚋𐚌𐚍𐚎𐚏𐚐𐚑𐚒𐚓𐚔𐚕𐚖𐚗𐚘𐚙𐚚𐚛𐚜𐚝𐚞𐚟𐚠𐚡𐚢𐚣𐚤𐚥𐚦𐚧𐚨𐚩𐚪𐚫𐚬𐚭𐚮𐚯𐚰𐚱𐚲𐚳𐚴𐚵𐚶𐚷𐚸𐚹𐚺𐚻𐚼𐚽𐚾𐚿𐛀𐛁𐛂𐛃𐛄𐛅𐛆𐛇𐛈𐛉𐛊𐛋𐛌𐛍𐛎𐛏𐛐𐛑𐛒𐛓𐛔𐛕𐛖𐛗𐛘𐛙𐛚𐛛𐛜𐛝𐛞𐛟𐛠𐛡𐛢𐛣𐛤𐛥𐛦𐛧𐛨𐛩𐛪𐛫𐛬𐛭𐛮𐛯𐛰𐛱𐛲𐛳𐛴𐛵𐛶𐛷𐛸𐛹𐛺𐛻𐛼𐛽𐛾𐛿𐜀𐜁𐜂𐜃𐜄𐜅𐜆𐜇𐜈𐜉𐜊𐜋𐜌𐜍𐜎𐜏𐜐𐜑𐜒𐜓𐜔𐜕𐜖𐜗𐜘𐜙𐜚𐜛𐜜𐜝𐜞𐜟𐜠𐜡𐜢𐜣𐜤𐜥𐜦𐜧𐜨𐜩𐜪𐜫𐜬𐜭𐜮𐜯𐜰𐜱𐜲𐜳𐜴𐜵𐜶𐜷𐜸𐜹𐜺𐜻𐜼𐜽𐜾𐜿𐝀𐝁𐝂𐝃𐝄𐝅𐝆𐝇𐝈𐝉𐝊𐝋𐝌𐝍𐝎𐝏𐝐𐝑𐝒𐝓𐝔𐝕𐝖𐝗𐝘𐝙𐝚𐝛𐝜𐝝𐝞𐝟𐝠𐝡𐝢𐝣𐝤𐝥𐝦𐝧𐝨𐝩𐝪𐝫𐝬𐝭𐝮𐝯𐝰𐝱𐝲𐝳𐝴𐝵𐝶𐝷𐝸𐝹𐝺𐝻𐝼𐝽𐝾𐝿𐞀𐞁𐞂𐞃𐞄𐞅𐞆𐞇𐞈𐞉𐞊𐞋𐞌𐞍𐞎𐞏𐞐𐞑𐞒𐞓𐞔𐞕𐞖𐞗𐞘𐞙𐞚𐞛𐞜𐞝𐞞𐞟𐞠𐞡𐞢𐞣𐞤𐞥𐞦𐞧𐞨𐞩𐞪𐞫𐞬𐞭𐞮𐞯𐞰𐞱𐞲𐞳𐞴𐞵𐞶𐞷𐞸𐞹𐞺𐞻𐞼𐞽𐞾𐞿𐟀𐟁𐟂𐟃𐟄𐟅𐟆𐟇𐟈𐟉𐟊𐟋𐟌𐟍𐟎𐟏𐟐𐟑𐟒𐟓𐟔𐟕𐟖𐟗𐟘𐟙𐟚𐟛𐟜𐟝𐟞𐟟𐟠𐟡𐟢𐟣𐟤𐟥𐟦𐟧𐟨𐟩𐟪𐟫𐟬𐟭𐟮𐟯𐟰𐟱𐟲𐟳𐟴𐟵𐟶𐟷𐟸𐟹𐟺𐟻𐟼𐟽𐟾𐟿𐠀𐠁𐠂𐠃𐠄𐠅𐠆𐠇𐠈𐠉𐠊𐠋𐠌𐠍𐠎𐠏𐠐𐠑𐠒𐠓𐠔𐠕𐠖𐠗𐠘𐠙𐠚𐠛𐠜𐠝𐠞𐠟𐠠𐠡𐠢𐠣𐠤𐠥𐠦𐠧𐠨𐠩𐠪𐠫𐠬𐠭𐠮𐠯𐠰𐠱𐠲𐠳𐠴𐠵𐠶𐠷𐠸𐠹𐠺𐠻𐠼𐠽𐠾𐠿𐡀𐡁𐡂𐡃𐡄𐡅𐡆𐡇𐡈𐡉𐡊𐡋𐡌𐡍𐡎𐡏𐡐𐡑𐡒𐡓𐡔𐡕𐡖𐡗𐡘𐡙𐡚𐡛𐡜𐡝𐡞𐡟𐡠𐡡𐡢𐡣𐡤𐡥𐡦𐡧𐡨𐡩𐡪𐡫𐡬𐡭𐡮𐡯𐡰𐡱𐡲𐡳𐡴𐡵𐡶𐡷𐡸𐡹𐡺𐡻𐡼𐡽𐡾𐡿𐢀𐢁𐢂𐢃𐢄𐢅𐢆𐢇𐢈𐢉𐢊𐢋𐢌𐢍𐢎𐢏𐢐𐢑𐢒𐢓𐢔𐢕𐢖𐢗𐢘𐢙𐢚𐢛𐢜𐢝𐢞𐢟𐢠𐢡𐢢𐢣𐢤𐢥𐢦𐢧𐢨𐢩𐢪𐢫𐢬𐢭𐢮𐢯𐢰𐢱𐢲𐢳𐢴𐢵𐢶𐢷𐢸𐢹𐢺𐢻𐢼𐢽𐢾𐢿𐣀𐣁𐣂𐣃𐣄𐣅𐣆𐣇𐣈𐣉𐣊𐣋𐣌𐣍𐣎𐣏𐣐𐣑𐣒𐣓𐣔𐣕𐣖𐣗𐣘𐣙𐣚𐣛𐣜𐣝𐣞𐣟𐣠𐣡𐣢𐣣𐣤𐣥𐣦𐣧𐣨𐣩𐣪𐣫𐣬𐣭𐣮𐣯𐣰𐣱𐣲𐣳𐣴𐣵𐣶𐣷𐣸𐣹𐣺𐣻𐣼𐣽𐣾𐣿𐤀𐤁𐤂𐤃𐤄𐤅𐤆𐤇𐤈𐤉𐤊𐤋𐤌𐤍𐤎𐤏𐤐𐤑𐤒𐤓𐤔𐤕𐤖𐤗𐤘𐤙𐤚𐤛𐤜𐤝𐤞𐤟𐤠𐤡𐤢𐤣𐤤𐤥𐤦𐤧𐤨𐤩𐤪𐤫𐤬𐤭𐤮𐤯𐤰𐤱𐤲𐤳𐤴𐤵𐤶𐤷𐤸𐤹𐤺𐤻𐤼𐤽𐤾𐤿𐥀𐥁𐥂𐥃𐥄𐥅𐥆𐥇𐥈𐥉𐥊𐥋𐥌𐥍𐥎𐥏𐥐𐥑𐥒𐥓𐥔𐥕𐥖𐥗𐥘𐥙𐥚𐥛𐥜𐥝𐥞𐥟𐥠𐥡𐥢𐥣𐥤𐥥𐥦𐥧𐥨𐥩𐥪𐥫𐥬𐥭𐥮𐥯𐥰𐥱𐥲𐥳𐥴𐥵𐥶𐥷𐥸𐥹𐥺𐥻𐥼𐥽𐥾𐥿𐦀𐦁𐦂𐦃𐦄𐦅𐦆𐦇𐦈𐦉𐦊𐦋𐦌𐦍𐦎𐦏𐦐𐦑𐦒𐦓𐦔𐦕𐦖𐦗𐦘𐦙𐦚𐦛𐦜𐦝𐦞𐦟𐦠𐦡𐦢𐦣𐦤𐦥𐦦𐦧𐦨𐦩𐦪𐦫𐦬𐦭𐦮𐦯𐦰𐦱𐦲𐦳𐦴𐦵𐦶𐦷𐦸𐦹𐦺𐦻𐦼𐦽𐦾𐦿𐧀𐧁𐧂𐧃𐧄𐧅𐧆𐧇𐧈𐧉𐧊𐧋𐧌𐧍𐧎𐧏𐧐𐧑𐧒𐧓𐧔𐧕𐧖𐧗𐧘𐧙𐧚𐧛𐧜𐧝𐧞𐧟𐧠𐧡𐧢𐧣𐧤𐧥𐧦𐧧𐧨𐧩𐧪𐧫𐧬𐧭𐧮𐧯𐧰𐧱𐧲𐧳𐧴𐧵𐧶𐧷𐧸𐧹𐧺𐧻𐧼𐧽𐧾𐧿𐨀𐨁𐨂𐨃𐨄𐨅𐨆𐨇𐨈𐨉𐨊𐨋𐨌𐨍𐨎𐨏𐨐𐨑𐨒𐨓𐨔𐨕𐨖𐨗𐨘𐨙𐨚𐨛𐨜𐨝𐨞𐨟𐨠𐨡𐨢𐨣𐨤𐨥𐨦𐨧𐨨𐨩𐨪𐨫𐨬𐨭𐨮𐨯𐨰𐨱𐨲𐨳𐨴𐨵𐨶𐨷𐨹𐨺𐨸𐨻𐨼𐨽𐨾𐨿𐩀𐩁𐩂𐩃𐩄𐩅𐩆𐩇𐩈𐩉𐩊𐩋𐩌𐩍𐩎𐩏𐩐𐩑𐩒𐩓𐩔𐩕𐩖𐩗𐩘𐩙𐩚𐩛𐩜𐩝𐩞𐩟𐩠𐩡𐩢𐩣𐩤𐩥𐩦𐩧𐩨𐩩𐩪𐩫𐩬𐩭𐩮𐩯𐩰𐩱𐩲𐩳𐩴𐩵𐩶𐩷𐩸𐩹𐩺𐩻𐩼𐩽𐩾𐩿𐪀𐪁𐪂𐪃𐪄𐪅𐪆𐪇𐪈𐪉𐪊𐪋𐪌𐪍𐪎𐪏𐪐𐪑𐪒𐪓𐪔𐪕𐪖𐪗𐪘𐪙𐪚𐪛𐪜𐪝𐪞𐪟𐪠𐪡𐪢𐪣𐪤𐪥𐪦𐪧𐪨𐪩𐪪𐪫𐪬𐪭𐪮𐪯𐪰𐪱𐪲𐪳𐪴𐪵𐪶𐪷𐪸𐪹𐪺𐪻𐪼𐪽𐪾𐪿𐫀𐫁𐫂𐫃𐫄𐫅𐫆𐫇𐫈𐫉𐫊𐫋𐫌𐫍𐫎𐫏𐫐𐫑𐫒𐫓𐫔𐫕𐫖𐫗𐫘𐫙𐫚𐫛𐫜𐫝𐫞𐫟𐫠𐫡𐫢𐫣𐫤𐫦𐫥𐫧𐫨𐫩𐫪𐫫𐫬𐫭𐫮𐫯𐫰𐫱𐫲𐫳𐫴𐫵𐫶𐫷𐫸𐫹𐫺𐫻𐫼𐫽𐫾𐫿𐬀𐬁𐬂𐬃𐬄𐬅𐬆𐬇𐬈𐬉𐬊𐬋𐬌𐬍𐬎𐬏𐬐𐬑𐬒𐬓𐬔𐬕𐬖𐬗𐬘𐬙𐬚𐬛𐬜𐬝𐬞𐬟𐬠𐬡𐬢𐬣𐬤𐬥𐬦𐬧𐬨𐬩𐬪𐬫𐬬𐬭𐬮𐬯𐬰𐬱𐬲𐬳𐬴𐬵𐬶𐬷𐬸𐬹𐬺𐬻𐬼𐬽𐬾𐬿𐭀𐭁𐭂𐭃𐭄𐭅𐭆𐭇𐭈𐭉𐭊𐭋𐭌𐭍𐭎𐭏𐭐𐭑𐭒𐭓𐭔𐭕𐭖𐭗𐭘𐭙𐭚𐭛𐭜𐭝𐭞𐭟𐭠𐭡𐭢𐭣𐭤𐭥𐭦𐭧𐭨𐭩𐭪𐭫𐭬𐭭𐭮𐭯𐭰𐭱𐭲𐭳𐭴𐭵𐭶𐭷𐭸𐭹𐭺𐭻𐭼𐭽𐭾𐭿𐮀𐮁𐮂𐮃𐮄𐮅𐮆𐮇𐮈𐮉𐮊𐮋𐮌𐮍𐮎𐮏𐮐𐮑𐮒𐮓𐮔𐮕𐮖𐮗𐮘𐮙𐮚𐮛𐮜𐮝𐮞𐮟𐮠𐮡𐮢𐮣𐮤𐮥𐮦𐮧𐮨𐮩𐮪𐮫𐮬𐮭𐮮𐮯𐮰𐮱𐮲𐮳𐮴𐮵𐮶𐮷𐮸𐮹𐮺𐮻𐮼𐮽𐮾𐮿𐯀𐯁𐯂𐯃𐯄𐯅𐯆𐯇𐯈𐯉𐯊𐯋𐯌𐯍𐯎𐯏𐯐𐯑𐯒𐯓𐯔𐯕𐯖𐯗𐯘𐯙𐯚𐯛𐯜𐯝𐯞𐯟𐯠𐯡𐯢𐯣𐯤𐯥𐯦𐯧𐯨𐯩𐯪𐯫𐯬𐯭𐯮𐯯𐯰𐯱𐯲𐯳𐯴𐯵𐯶𐯷𐯸𐯹𐯺𐯻𐯼𐯽𐯾𐯿𐰀𐰁𐰂𐰃𐰄

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(see reproduction of scripts, page 269). All writing in Egypt, until the intrusion of the Greek alphabet, is of one origin. Here we have the second way in which a script may arise, namely, by the extension and adaptation of the pictorial principle to the need of expressing non-pictorial elements of speech.

We find, then, that both in Egypt and in Sumer the picture constitutes the first element of the script, and in different ways remains an essential part of the system of writing in both countries. That is to say that both in Egyptian and Sumerian a large number of signs retain the function which they had as pictures; their primary function is to indicate an object, while their secondary function is to indicate the sound or word which denotes that object in speech. Hence the pictorial origin of writing has left its mark on both the hieroglyphic and cuneiform systems in the form of a large body of signs which are known as *ideograms*, although the term is not entirely satisfactory. It is perhaps simpler to speak of such signs as *word-signs*. For instance, in Egyptian, the ideogram or word-sign for 'house' is the sign , which represents the word *pr*, and is the picture of the groundplan of a house. In Sumerian the word *sag*, 'head', is denoted by the picture of a man's head (cf. PLATES II and IV).

Now it is obvious that ideograms or word-signs alone are incapable of fulfilling the necessary functions of a system of writing, namely, the representation in visible form of intelligible discourse, the movement of thought. For instance, in such a simple sentence as 'this is the king's house', the juxtaposition of the picture signs for 'house' and 'king' would fail to yield that meaning unambiguously, and might be read in several ways. The history of writing, both in Sumer and in Egypt, shows that the solution of this difficulty was sought along two lines. The first was to increase the detail of the picture-sign, to make the picture do more work. Thus in the hieroglyphic system the basic picture of a man is used in many ways. The sign list in Dr Alan Gardiner's *Egyptian Grammar* gives no less than 53 signs representing a man in different states or activities. The Sumerian scribes devised the plan of marking the picture-sign to show some modification of its original meaning. Thus by drawing lines under the chin of the picture of a man's head it was indicated that only the mouth was referred to, and the sign *sag* was transformed into the sign *ka*. The result of such a tendency was inevitably a great increase in the number of pictorial signs employed. The sign list in Dr Gardiner's *Grammar*, representing Middle Egyptian usage, contains 732 signs, while the

## THE EARLY HISTORY OF WRITING

number of signs employed in the period represented by the early documents from Uruk is estimated at 2000. Apart from the cumbersome nature of such a system its limitations are obvious. No increase in detail could adequately represent all the possible extensions of meaning implicit in a picture-sign, nor could it ever succeed in denoting all the relations of the words in a sentence.

The alternative solution, which was to mark out the ultimate line of development for writing, was to make the picture-signs represent sounds without regard to their meaning. This process was possibly suggested, at the outset, by the existence in both Egyptian and Sumerian of homonyms, that is, of words with the same sound but of different meanings. According to Dr Falkenstein the earliest example of this method of extending the range of the pictorial signs comes from the Jemdet Nasr tablets and is the name *en-lil-ti*, meaning 'Enlil causes to live'. The word-sign *ti* is the picture of an arrow, according to Dr Falkenstein, and is the Sumerian word for that object. In the proper name referred to, the pictorial sign for an arrow has been transferred to the Sumerian word of the same sound meaning 'life', a word which it would be very difficult to represent pictorially. Similarly, in Egyptian we find the familiar sign for the scarabaeus (*hpr*) transferred to the homonym *hpr* meaning 'to be, to exist'.

While this device increases the range of expression of the pictorial signs it also increases their ambiguity, and its use is limited by the comparatively small number of homonyms.

But this use of homonyms to increase the range of utility of a single sign, pointed the way to the main line of development along which early writing was destined to progress, namely, the divorce of sound from meaning. The fact that the Sumerian vocabulary was mainly monosyllabic aided the process, and early in the 3rd millennium we find three well-developed tendencies:

- I the use of the same word-sign for words similar in sound but not in meaning, and the closely related development of syllabic signs.
- II the introduction of what are called Determinatives.
- III the arrangement of the signs within a compartment of a tablet in the order in which the words would have been read or spoken.

The effect of the development of syllabic signs is seen in the progressive reduction of the number of signs in current use. The 2000 signs in use in the period of Uruk ivb have dwindled to 800 in

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the period of the Fara texts, while by the time of Urukagina (*c.* 2900 B.C.) another 200 signs in use in the Fara texts have disappeared. A striking example of this process is afforded by the story of the sign for UDU, the Sumerian word for 'sheep'. It has already been pointed out that these early tablets are mainly temple documents, lists of offerings and so forth, hence it is not surprising that the sign for 'sheep' should be of frequent occurrence. Now in the material from layer ivb there are no less than 31 variations of the sign UDU, corresponding no doubt to the many varieties of sheep and goats used in the temple for ritual purposes. But in layer III only 3 signs for 'sheep' remain, and in layer I there are only 2 left. Here as Falkenstein remarks there has evidently been a deliberate rejection of an almost unlimited tendency to differentiation.

The use of Determinatives is a device intended to remove ambiguities, and appears at an early stage in the development of both the Sumerian and Egyptian systems of writing. It consists in the use of certain signs denoting classes of persons or things, such signs being placed before or after the sign to be determined. Probably the earliest of such signs is the sign for DINGIR, god, which is prefixed to the names of the gods. The sign GIŠ, wood, is placed before the names of things made wholly or partly of wood. Thus the word-sign for 'plough', originally the picture of a plough, and capable of meaning either a plough or a ploughman, by the use of determinative signs can have its meaning limited or determined. With the sign GIŠ prefixed it means a plough, but with the sign LU, man, prefixed, it can only mean a ploughman. Two other very common determinatives are the signs KUR and KI, used respectively to mark the names of countries and cities, KUR coming before the sign which it determines, and KI after its sign. The traditional rules governing the use and position of the determinatives seem to have been established at a very early date.

The development of syllabic signs made it possible to express in writing those grammatical elements of speech, such as case endings, pronominal affixes and suffixes, prepositions, adverbs and conjunctions, which by their nature cannot be expressed pictorially. As far as our knowledge goes at present, the first of the syllabic signs to be used in this way was the plural sign.

Another important use of the syllabic signs as an aid towards clearness of meaning is their use as 'phonetic complements', a use found at an early date in both the Egyptian and the Sumerian systems. This can best be explained by an example.

PLATE I



THE PALETTE OF NARMER (see p. 204)  
from *Journal of Egyptian Archaeology*, 1913, II, 73

PLATE II



PICTORIAL TABLET FROM KISH, OBVERSE (see p. 267)  
*from a cast*

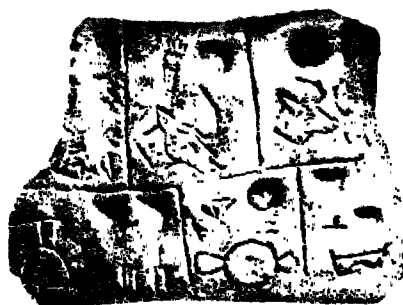
PLATE III



PICTORIAL TABLET FROM KISH, REVERSE (see p. 267)  
*from a cast*



# PLATE IV



PICTORIAL TABLETS FROM URUK, IV b (see p. 276)  
*State Museum, Berlin*

PLATE V



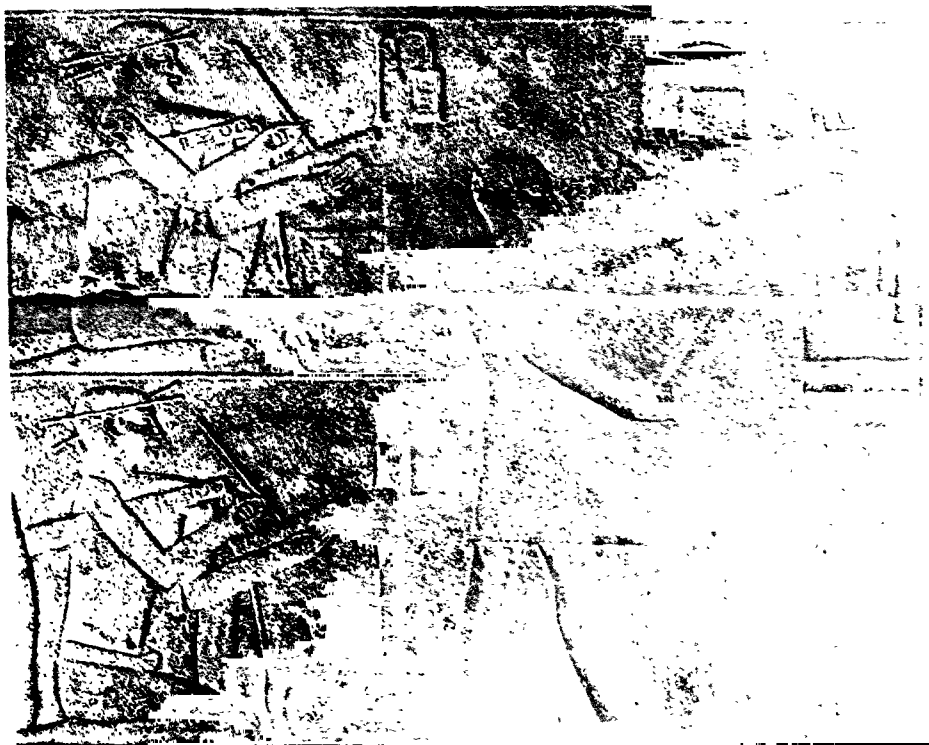
PICTORIAL TABLET FROM URUK SHOWING THE BEGINNING OF THE USE OF  
COLUMNS AND COMPARTMENTS (see p. 273)

*State Museum, Berlin*

PLATE VI



(a) AN EGYPTIAN OFFICIAL WITH WRITING IMPLEMENTS



(b) EGYPTIAN SCRIBES AT WORK, SAKKHARA  
(after Bonnet)

PLATE VII



AN ASSYRIAN SCULPTURE WITH STYLUS AND TABLET, SENSATION RIB RELIEF  
*British Museum*



## THE EARLY HISTORY OF WRITING

One of the ambiguities which had to be dealt with by the people who shaped the Sumerian system of writing was the fact that many of the Sumerian word-signs were polyphons, that is, they had more than one phonetic value, carrying more than one meaning. This difficulty arose from the pictorial origin of the script. For example, the sign *DU*, whose original pictorial form was the human foot, might stand for the various activities connected with the use of the feet, and the words describing such activities would naturally have different phonetic values. Thus the sign *DU* came to stand for the words *gin*, to go, *gub*, to stand, and *tum*, to bring. By writing the syllabic signs *-na*, *-ba*, and *-ma*, respectively, after the sign *DU*, the scribe indicated which value was to be given to it. Thus the sign *DU* with the syllabic sign *na* written after it would be read *gin-a*, going, and similarly with the other words named.

The third tendency mentioned above, namely the arrangement of the signs within a compartment of a tablet in their proper, that is, their spoken order, completed the early stage of the internal development of Sumerian writing. On the earliest tablets there are no compartments marked, and the few signs which such tablets contain are arranged quite arbitrarily. When compartments begin to appear the signs which they contain show no traces of arrangement. This is no doubt due to the fact that these early documents were simply memoranda of merely temporary importance relating to temple business. They were quite intelligible to the people who wrote them, but were not intended to have any permanent value. When however it became a matter of interest to the rulers of cities like Lagash, for instance, to preserve records of their achievements, such a rough and ready way of making occasional notes gave place to an orderly arrangement of the signs in successive lines within the compartments of the tablet (PLATE V). This process seems to have been complete by the time of Eannatum (c. 3000).

Hence, by the end of the 4th millennium, the Sumerian system of writing consisted of a syllabary, or sign-list, containing about 500-600 signs. About 100 of these were phonetic signs representing the vowels *a*, *e*, *i*, *o*, and *u*, and the various combinations of these vowels with the consonantal sounds used by the Sumerians, but, unlike the Egyptians, the Sumerians had not devised any method of representing simple consonantal sounds, that is, they had not reached, nor did they ever reach, the final stage in the development of writing, the creation of an alphabet. It is interesting to observe that although the Egyptians had, at a very early date, discovered the alphabetic principle of writing,

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they never went on to take the logical step of discarding the cumbersome machinery of ideograms, determinatives, and phonetic complements, but to the end of their civilization continued to use the alphabetic method of writing simply as an adjunct to the rest of their ancient traditional system.

The history of the alphabet, however, is another story which would require much more space than we have at our disposal.

So far we have been concerned entirely with the internal development of the Sumerian system of writing. But there are various important changes in the external appearance of the script of which a brief account must be given.

We have already seen that the earliest form of the signs used both by the Sumerians and the Egyptians was completely pictorial, but the external development of the signs as we watch it from the early tablets of Uruk up to the elegant script of the Assyrian scribes follows in Mesopotamia an entirely different course from that which it took in Egypt. This is mainly due to the fact that while in Egypt from very early times the papyrus reed furnished an inexhaustible supply of excellent writing material, the only generally available writing material in Mesopotamia was clay.

The early tablets from Uruk show that the signs were drawn on the clay in strokes of uniform thickness with a reed stylus. Falkenstein remarks with reference to the stylus, 'judging from the fineness of the lines in some of the tablets, an almost knife-sharp reed must have been used'. But it must have been a slow and difficult business to draw curved lines on wet clay, and by the time we reach the period of the Fara tablets the scribes had begun to cut the ends of their reed pens in a fairly wide-angled wedge, and instead of drawing their pictures in lines, curved or straight, they were beginning to make them by pressing the wedge-shaped end of the stylus into the clay and forming the required design by means of a group of wedges of different sizes and thickness.

The process is best illustrated by observing the change which has taken place in such a characteristic sign as SAG, representing the head of a man. In Uruk ivb the head is fully drawn, with eye, nose and mouth; in Uruk III and in Jemdet Nasr it is still drawn, but in a greatly simplified form; in Fara we find a design composed of a group of seven wedges, in which it would be hard to recognize anything resembling a human head; finally we have the sign in the compact form which it received from the Assyrian scribes (FIG. 1). It is from the appearance

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which the script presents in this stage of its development that it has received its name 'cuneiform', (Latin, *cuneus*, a wedge).

But there is another curious phenomenon to be noticed in the external development of the Sumerian script. It may be seen in the story of the sign SAG, mentioned above. When we first meet the sign, as for example on the Kish tablet (PLATE II), the sign is drawn in its normal position, *i.e.*, with the head upright, and facing to the right. But when we come to layer III, or Jemdet Nasr, the sign appears lying on its back, with the face pointing upward, and we see that all the other signs have suffered the same change. The reason for this curious change seems to be that the early tablets which were small enough to be held comfortably in the palm of the hand, were held by the scribe in the left hand at an angle of about  $45^\circ$ , and the signs were written on the tablet as if it were horizontal. With an increase in the size of the tablets

### **SAG** ..... *development of the sign from 3500-700 B.C.*

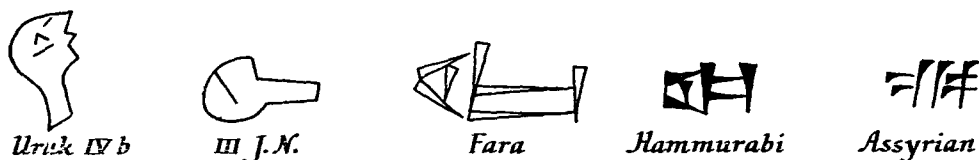


FIG. 1

this position became inconvenient and the tablet was turned in a counter-clockwise direction till it was perpendicular. But as the turn was only one of  $45^\circ$  the signs were written in the same way as before, and hence, when the tablet was read in the perpendicular position, the signs would appear to be lying in a horizontal position face upward (FIG. 2). By the time the change took place, possibly after the period of the Fara tablets, the form of the signs had so far departed from their original pictorial character that they were no longer felt to be in an unnatural position.

This explanation is supported by the fact that in the case of inscriptions on monuments of stone or metal, where such a change of position was not practicable, the old position of the signs persisted. For example, on the stele of Hammurabi, the signs are engraved in the old position. Shortly after this date, *i.e.*, about 2000 B.C., the practice in the case of monumental inscriptions came into line with that which had already long been in operation in the case of clay tablets.



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Another important fact in connexion with the history of the Sumerian system of writing calls for notice. It is that as the result of the Semitic conquest of Mesopotamia, the Sumerian script was taken over by the invaders and adapted to the writing of a language whose sounds and vocabulary were totally different from the language which the script was invented to express. While this change had no effect on the nature of the script itself, it had very disturbing effects on the use of the script, since to the values which any Sumerian sign possessed, as a word-sign or a syllabic sign, there were now added Semitic values

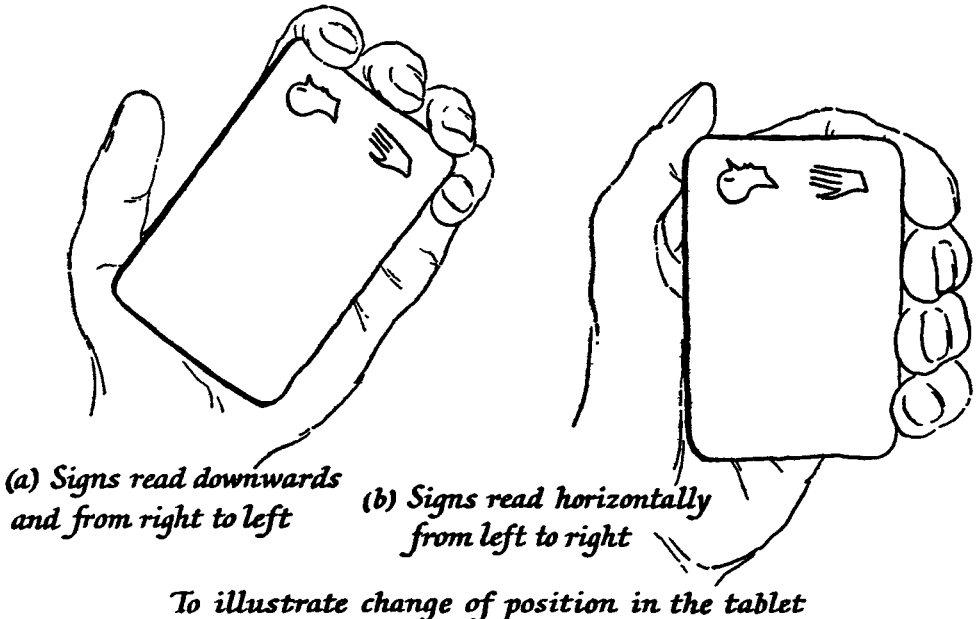


FIG. 2

as well. Moreover, Sumerian continued to be used as the language of religion, for ritual purposes, much as Latin survived through the Middle Ages as the language of the Mass. Hence it had to be studied by the priests, and the large number of lexical and bi-lingual tablets discovered by excavators shows that the difficulties which these ancient texts present to the modern scholar also existed in some measure for the Babylonian and Assyrian scribes.

But in spite of these difficulties the cuneiform script acquired a place in the ancient Near East which its most important rival, the

## THE EARLY HISTORY OF WRITING

Egyptian hieroglyphic script, never attained. The Tell el-Amarna Letters show that the cuneiform script was used as the medium of diplomatic intercourse between Egyptian pharaohs, Hittite kings, Mitannite princes, and Canaanite chiefs in the middle of the 2nd millennium B.C. It was used at an earlier date as a means of writing the Hittite, Hurrian, and other kindred dialects, languages which were totally different from either Sumerian or Akkadian. It was used as late as the time of Darius Hystaspis to inscribe in Susian on the Rock of Behistun the record of the victories of the Great King, and continued to be used on tablets down to the end of the pre-Christian era. This is a remarkable practical achievement for a system of writing which had never reached the final stage of development in which all the simple sounds, the vowels and consonants, used by any speech, are each represented by a separate sign, that is to say, the purely alphabetic stage of writing.

As we have already said, there is not space here to tell the story of the alphabet, but this much may be said in conclusion. By the middle of the 2nd millennium the need felt by traders and merchants of the Mediterranean seaboard for a script that was simpler to read and easier to write had led to several experiments in the direction of an alphabet, but various causes combined to give the script commonly known as the Phœnician script, the earliest example of which as far as we know at present comes from Byblos<sup>3</sup> in the 14th century B.C., the pre-eminence over its rivals, and this form of writing ultimately ousted all others in the Near East and in the East, and became the ancestor of all our western alphabets.

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<sup>3</sup> The reference is of course to the well-known inscription on the sarcophagus of Abiram, King of Tyre, recognized as the earliest example of the so-called 'Phœnician' script, and has nothing to do with the undeciphered inscription referred to by Dr. Alan Gardiner in his letter to *The Times* of 16 July 1937, reprinted page 359 of this number\*.—S.H.H.

\* A letter by Professor T. H. Gaster on the inscription was printed in *The Times* of 30 July.—EDITOR.

# The Horn of Ulph

by T. D. KENDRICK

THE Horn of Ulph is one of the principal treasures of York Minster. It is exhibited in the Chapter House, and is well-known to visitors ; but in spite of its fame this celebrated antiquity cannot be studied quickly and conveniently away from the Minster,<sup>1</sup> and the Dean of York has therefore rendered an important service to scholars by allowing Mr C. J. P. Cave to take the fine photographs reproduced here (PLATES I-V).

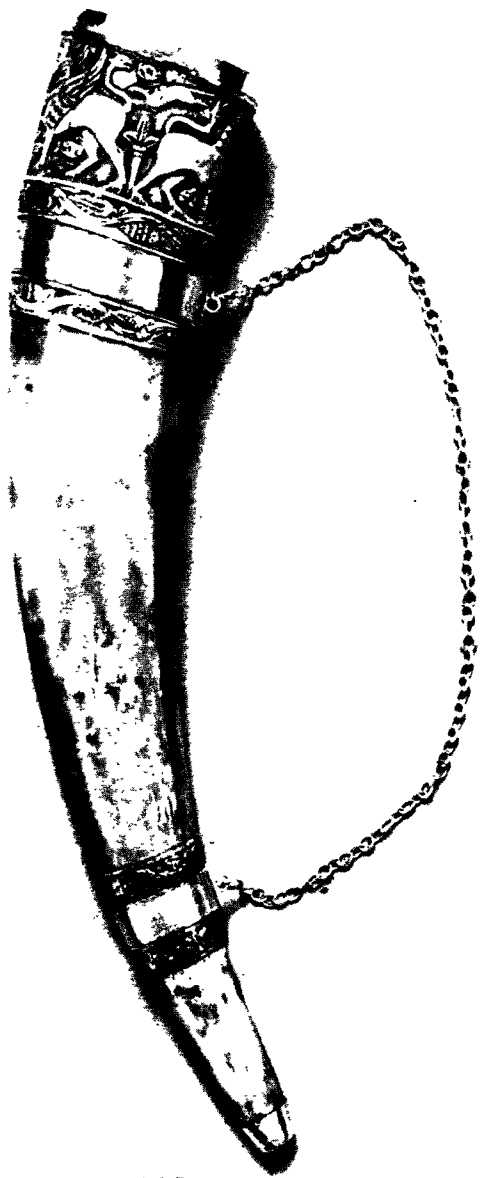
The horn is one of the so-called ' oliphants ', *i.e.* horns made from tusks of elephant-ivory, and it is a particularly noble example, being both large and handsome, with a maximum length of 2 feet 4 inches and a mouth 5 inches in diameter. The ivory has coloured to a warm orange brown with rich cloudings and gradations in tone, the sunken fields in the carved zones having darkened almost to black ; but though it is thus venerable in appearance, the horn is excellently preserved, and the unimpaired lustrous gleam of the figures in relief and of the unornamented surface does much to enhance the mellow beauty of this magnificent piece. The shaft is faceted on the top and bottom with a gentle ribbing, as soft as the ' bone ' of a good Malacca cane ; but the flanks are rounded, and the section near the mouth is a natural oval. The metal fittings are silver-work of the 17th century, and consist of a plain rim and two inscribed bands to which are fastened the ends of the chain. The Latin inscription on the mounts states that the horn, having been given [to the Minster] by Ulph, a chieftain of western Deira, with all his lands, was subsequently lost or stolen, and afterwards restored and re-mounted by Henry Lord Fairfax in 1675.

The carving, which has a relief of  $\frac{1}{8}$ — $\frac{1}{16}$  inch, is confined to zones at the mouth and near the point of the horn. The first, which is 3 inches wide and has a scalloped upper edge that is almost concealed by the metal rim, contains a bold parade of animal-subjects against a

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<sup>1</sup> For early publications, illustrated by drawings, see *Vetusta Monumenta* I (1747), pl. 2 ; *Archaeological Journal* (1869), xxvi, 1 ; *Journal Brit. Arch. Association* (1892), XLVIII, 251. In recent years an admirable account has been written by Mr C. G. E. Bunt, illustrated by Miss H. L. Hodgson. It was published in York (Report of the Friends of York Minster, 1935), and is obtainable at the Minster in pamphlet form.

PLATE I



THE HORN OF ULPH (length 2 feet 4 inches)  
Plates I-V, *publ.* C. J. P. Cave



## THE HORN OF ULPH

space-filling display of rather ragged foliage. All the others are narrow belts bearing a foliate scroll with berry-clusters and acanthus leaves. The style is very harsh and stiff, with coarse toothed shading and jagged hollows, and there is little sensitiveness in the modelling. The design is in concept fiercely unnatural, and the virtue of the carving lies in its powerful and heraldic abstract strength. The subjects are a pair of confronted winged monsters with a tree between them, a unicorn, and 'animal-combat' scene, and a little quadruped that hurtles through the air to attack the animal-headed tail of one of the monsters. It is in the highest degree improbable that these subjects possess here any intentional symbolic significance; for though they are no doubt ultimately derived from the earlier symbolic apparatus of the East, the horn is so far removed in time from the distant beginnings of these fantastic animal-forms that the original symbolic ideas attached to them, whatever they were, are not likely to have survived to inspire the carver of the oliphant. The device of the tree or plant between two winged beasts is, for example, at least as old as Babylonian art of the early part of the third millennium B.C., and the curious tails with the zoomorphic heads can be traced back to Syrian art of the 9th century B.C. But the horn is work of the 10th or 11th century A.D., and all this is too remote to be regarded as the immediate source of the animal-decoration, which must rather be connected with a generalized ornamental system of the Near East that had been perpetuated by Sassanian and Early Islamic art.

The dating of the horn depends upon the tradition that it is the horn of tenure for the lands given to the Minster by Ulph, a Danish nobleman who had been established in Yorkshire before the reign of Edward the Confessor.<sup>2</sup> The first mention of this tradition occurs in a metrical chronicle which was written, as its prologue shows, during the time of Archbishop Thomas Arundel (1388-97), though there is no extant copy of it earlier than the middle or end of the 15th century.<sup>3</sup>

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<sup>2</sup> There is no justification for identifying this Ulph Thoroldsson with the better-known Ulph Thorgilsson who was the brother-in-law of Cnut and was eventually put to death by the king. Note that the use of a horn as a symbol of landed property is well attested; cf. *Archaeologia* (1786) III, 1; *Burlington Magazine* (1909) xv, 221; *ib.* (1928) LII, 277. The Pusey horn, which was recently in the sale room, is a well-known example.

<sup>3</sup> British Museum MSS, Cleop. c. iv, fol. 16 and Titus A. xix, fol. 8b. The poem is printed by James Raine, *Historians of the Church of York* (Rolls Series), II, 446 ff. (see lines 285-92). The tradition is repeated by Camden, *Britannia* (ed. Gough, 1789), III, 10, 65.

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According to this poem Ulph (consul et insignis Eboracensis, comes) ceded lands to the Minster, giving as a token of the transfer an ivory horn (ex ebore cornu . . . cornea buccina, candida, lucida), which transfer was confirmed by Edward the Confessor. Moreover there is no doubt that in Arundel's day the tradition was focused upon an ivory horn then existing in the Treasury of the Minster ; for John de Neweton, who was installed as treasurer in 1393, added a chain to the 'great horn of ivory with silver-gilt ornament, the gift of Ulph, son of Thorold'.<sup>4</sup>

But we can go further back than this ; for there is a representation of the horn carved by the side of the supposed arms of Ulph in the spandrel next to the transept on the north side of the nave, which was built c. 1300.<sup>5</sup> It is, I think, a legitimate inference from this that a horn of tenure was associated with Ulph's gift of land at least as early as the middle of the 13th century ; for there is not the slightest reason to suspect a need for forged credentials or any other medieval deceit. And this brings us sufficiently close to the ratification by the Confessor to make it clear that in all probability the tradition was founded upon fact. Furthermore, we can believe with confidence that the horn, which was the symbol of the transfer of Ulph's property, was none other than the oliphant still surviving in the Chapter House ; for on the south side of the choir, which is not very much later in date than the nave, there is another carving of the horn by the side of Ulph's arms, and this is zoned and faceted in the manner of the surviving oliphant, which it is most plainly intended to represent. I feel, therefore, that there is strong presumptive evidence in favour of the traditional view that the York oliphant was given to the Minster by Ulph, and this means that it must not be dated later than the first half of the 11th century.

This is the only point that I wish to make here ; for it is not part of my purpose to discuss oliphants as a class. We must wait for Dr. Goldschmidt's next volume of his great work *Elfenbeinskulpturen* before

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<sup>4</sup> Neweton's gift of the chain is recorded in a 16th century inventory ; see Raine, *op. cit.*, III, 386.

<sup>5</sup> Probably 1309-10. The Rev. Chancellor F. Harrison, who has been kind enough to help me in connexion with this paper, remarks that the horn here, as now seen, is a poor representation of the real thing, having been restored after the fire of 1840-1. He observes further that Ulph's shield of arms is to be found balancing that of the king over the interior of the west door, and perhaps signifies in that position the temporal power of the church. In the choir, where there is a much better version of the horn, Ulph's shield comes next to that of France (before 1340), an obviously important place.

PLATE II



FIG. 1. BELL OF ULLU (detail) - diameter of mouth 5 inches



PLATE III



THE HORN OF ULPH (detail)

PLATE IV



THE HORN OF ULPH (detail)

PLATE V



THE HORN OF ULPH (detail)

## THE HORN OF ULPH

we have an exact attribution for the York piece ; but I imagine it will be assigned to a Byzantine school in Europe or Asia Minor rather than to some Fatimid or purely Eastern workshop. It is, however, right to observe that the Horn of Ulph is by no means an unusual sort of oliphant, though it is certainly a very fine one. Others are very closely allied to it in the style of their ornament, and of these the horn that is nearest to it—so near that it might well be regarded as a work of the same hand—is one in the Cabinet des Medailles (Bibliothèque Nationale), in Paris, which comes from Chartreuse de Portes, Ain. It has its ornament arranged in zones that extend without interruption over the main body of the horn, and it is remarkable for the intrusion of a Good Shepherd figure among its array of oriental beasts ; but the style and treatment of these creatures is almost identical with those of similar beasts on the Horn of Ulph, and we find an exact repetition of the unicorn-and-lion group on the York carving. There is another oliphant in Saragossa cathedral that belongs to the same school.

The York type, however, is distinguished by the fact that the main length of its body bears no carving at all and is lightly faceted. A number of other oliphants are of the same kind, and of these the most important is the Horn of St. Norbert at Zurich which, as an inscription attests, was given to the abbey of St. Gall by Norbert himself, presumably before his retirement in 1072.<sup>6</sup> The ornament differs from that of the York horn, for there is no frieze of animals at the mouth, and the tip is covered with a thin formal scroll of a foliate kind ; but we come nearer to Ulph's horn with the example from the Muri monastery, Switzerland, now in the Kunsthistorisches Museum in Vienna, which has a faceted body, a frieze with animals and figures at the mouth, and marginal scrolls flanking the spaces for the metal mounts.<sup>7</sup> An oliphant at St. Trophême, Arles, is of the same kind, and so is the Horn of St. Blasius, once in the Guelph collection. Others with a faceted body are to be seen in the Prague Treasury, in the Victoria and Albert Museum, in the Kaiser-Friedrich Museum in Berlin, at the Musée St. Jean, Angers, and in the collection of the Marquess of Ailesbury. This last is the celebrated Bruce horn, well-known for its extremely fine 14th century metal mounts, and it is from our point of view the most interesting of all in this faceted series ; for though the ivory tusk has

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<sup>6</sup> *Anzeiger f. schweizerische Altertumskunde* (1926), NF. XXVII, p. 93.

<sup>7</sup> *Anzeiger f. schweizerische Altertumskunde*, loc. cit. p. 169. This horn is associated by an inscription of 1199 with Adalbert III of Habsburg.

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no other ornament than its ribbing, it is important to us as a second example in this country of an oliphant that is said to be a horn of tenure, as it is traditionally associated with the holding of Savernake Forest.

Therefore, though we rightly respect the Horn of Ulph as one of the most venerable and precious of the minor antiquities in the keeping of the Church of England, we shall do well to remember that in its day it was not more than one of a large series of similar costly ivory horns that had found their way into western Europe. This is a point that should perhaps be taken into consideration in connexion with the plausibility of the York tradition ; for since these horns are not excessively rare, there is nothing very odd or unlikely in the fact that one of them should have become the property of a Danish nobleman in England. We all know that the connexion between the Viking world and the Byzantine East was a close one. Moreover, the story, mentioned by Mr Bunt, that Ulph himself received the horn from King Cnut at the time of the original grant of the lands subsequently transferred to the Minster, must be held to be a reasonable extension of the tradition attached to the York oliphant ; and if this further tale be true, the only comment it seems necessary to make is that Ulph was lucky enough to receive a much more valuable symbol of his territorial holding than did the grantee of the Pusey estate, to whom Cnut gave a plain ox-horn.

[The author and editors wish to acknowledge their grateful thanks to Mr C. J. P. CAVE for his kindness in taking the photographs which have made possible the publication of this article].

# The Battlefield of Brunanburh

by W. S. ANGUS

**B**RUNANBURH was fought in the late summer of 937 between king Athelstan and all the might of England on one side, and the viking Olaf Guthfrithson, king of Dublin and claimant to the throne of York, and his ally Constantine II, king of Scots, upon the other. The thousandth anniversary of this British battle of the nations is an occasion for reviewing critically the evidence upon the disputed question of its site. The well-known poem in the Anglo-Saxon Chronicle, being impressionist rather than narrative, provides only two or three slight clues; the Latin poem preserved by William of Malmesbury,<sup>1</sup> of early but uncertain date, helps us only a little further; and the Northumbrian annals used by Symeon of Durham seem to have supplied him with an alternative name for the battlefield but no other indication of its locality. Judgment must therefore be based largely upon the names by which the battle was known and upon traditions preserved by writers who had no claim to be contemporary; and the reliability of such evidence must be tested.

The place of battle was known to early medieval writers by some eight different names.<sup>2</sup> Most of them consist of the main element Brun-, Brunan-, or Brunes-, which might appear by itself but was usually linked with one of the terminations -burh, -werc, -dun, -fort, or -feld, or the prefix Dun-; and the battlefield was also called Wendune, and perhaps Vinheiðr in Old Norse. These variations suggest that the engagement took place on a field or heath beside an artificial or natural stronghold, and some such fortress is also perhaps implied by the phrase 'ymbe Brunanburh', 'round Brunanburh', in the poem in the Anglo-Saxon Chronicle. But it also seems that the form of the name was not well fixed in current English speech at the time of the battle; and the main element Brun appears without prefix or suffix in the *Annales Cambriae* and *Brut y Tywysogion* only, while

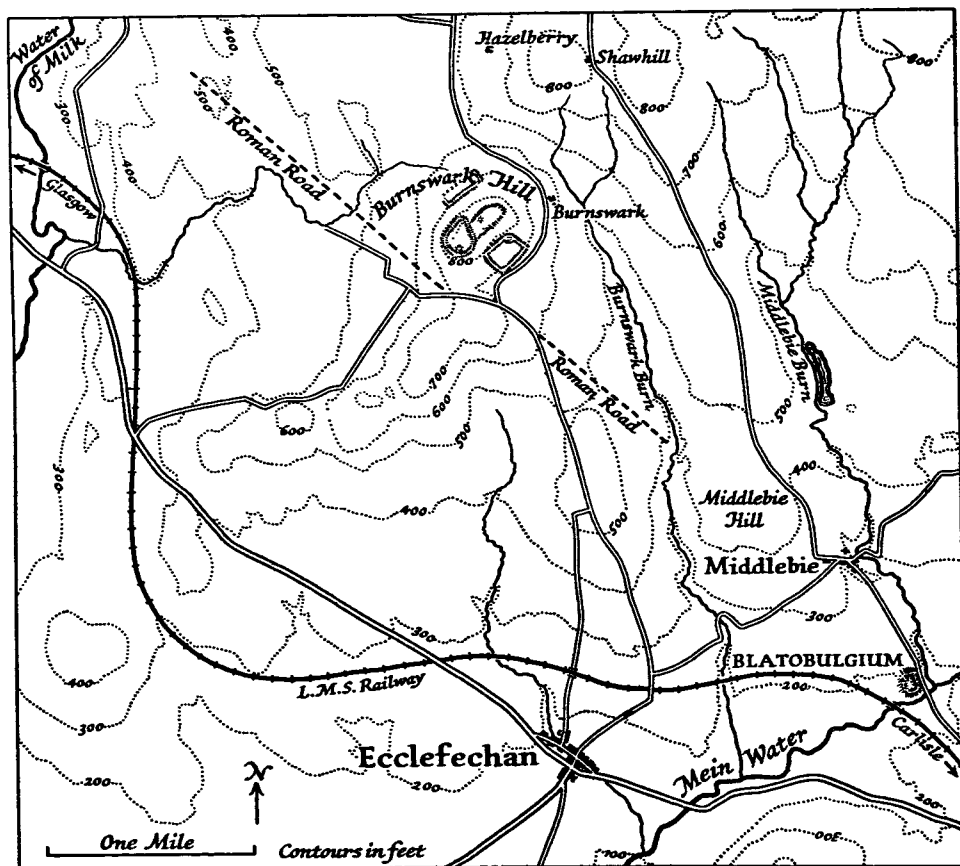
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<sup>1</sup> William of Malmesbury (Rolls Series), *Gesta Regum*, lib. II, §135 (I, 151).

<sup>2</sup> See list given by G. Neilson, 'Brunanburh and Burnswark', *Scottish Historical Review* (1909), 38, an article to be consulted *passim*.

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English writers added some termination. These points may be illusory, but may be reason for satisfaction if other evidence indicates a site on the confines of Celtic territory.



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More than thirty places have been suggested as the site of the battle.<sup>3</sup> Some have little more to recommend them than a superficial resemblance of name. The modern study of place-names puts such claims to scientific tests. Dr A. H. Smith has recently shown<sup>4</sup> that

<sup>3</sup> See list given by J. H. Cockburn, *The Battle of Brunanburh and its Period*, pp. 40-48.

<sup>4</sup> A. H. Smith, 'The Site of the Battle of Brunanburh', *London Mediaeval Studies* (1937), I, pt. I, 56-59.

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old spellings of the name of Bromborough in Cheshire make it fairly certain that its original form was Brunanburh ; and he states that this connexion has been established for no other place-name. He concludes that Bromborough merits close attention as a likely site of the battle, along with Burnswark near Ecclefechan in Dumfriesshire, which in 1542 was Burnyswarke.

The case for Burnswark was expounded by Dr George Neilson,<sup>5</sup> who used three main arguments in its favour. The name and its few traceable older forms were sufficiently close to Gaimar's *Bruneswerce* and to *Etbrunnanwerce*, given by Symeon of Durham as an alternative to *Brunnanbyrig* and *Weondune*.<sup>6</sup> The general location agreed with that indicated by *Alia Miracula S. Johannis*,<sup>7</sup> a Beverley tract written about 1170-1180, which Neilson thought was corroborated by Egil's Saga. Finally, the detailed description in that saga of the battle of Vinheiðr fitted perfectly, in Neilson's view, with the topography of Burnswark. We may therefore attempt next to assess the reliability of the descriptions of the campaign extant in the works of medieval writers.

According to Florence of Worcester, Olaf landed in the Humber.<sup>8</sup> Florence is the only authority for this statement, though Symeon of Durham, Roger of Hoveden, and Roger of Wendover copied him at first or second hand.<sup>9</sup> The ancient poem preserved by William of Malmesbury<sup>10</sup> implies fairly clearly that Olaf landed in the friendly territory of the Scots, and an invasion by the Humber is incompatible with the account given by the Beverley writer of *Alia Miracula S. Johannis*, who may be credited with a better knowledge of the north of England than Florence can have had. Olaf came from and returned to Dublin,<sup>11</sup> and would hardly risk either a voyage round the north of Scotland or an engagement with Athelstan's fleet in the Channel when he might join Constantine after a short crossing of the Irish Sea.<sup>12</sup>

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<sup>5</sup> G. Neilson, *op. cit.*

<sup>6</sup> Symeon of Durham (Rolls Series), *Historia Dunelmensis Ecclesiae*, lib. II, xviii (I, 76).

<sup>7</sup> *Historians of the Church of York* (Rolls Series) I, IV, 294-6.

<sup>8</sup> Florence of Worcester (*ed.* B. Thorpe), I, 132.

<sup>9</sup> Symeon of Durham (Rolls Series), *Historia Regum*, § 107 (II, 125); Roger of Hoveden (Rolls Series) 54; Roger of Wendover (*ed.* H. O. Coxe), *Flores Historiarum*, I, 392.

<sup>10</sup> William of Malmesbury, *loc. cit.*

<sup>11</sup> A. S. Chronicle, A, B, C, D, 937; *Four Masters*, 935; *Chronicon Scotorum*, 936; *Annals of Clonmacnoise*, 931.

<sup>12</sup> See Sir C. Oman, *England before the Norman Conquest*, p. 520.



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Florence's statement is therefore improbable and at variance with other authorities.

It has been contended that Athelstan's visit to Beverley, referred to in *Alia Miracula S. Johannis*, was an event of 934 and not of 937, and that the details of Athelstan's campaign recorded in that work must also be placed in the earlier of these two years, when Athelstan certainly invaded Scotland.<sup>13</sup> The tract does not supply the date of Athelstan's visit, and Symeon of Durham<sup>14</sup> makes it clear that his gifts to St. Cuthbert's church at Chester-le-Street belong to the year 934, whatever may be the date of his gifts to Beverley. But Athelstan may not have visited both Beverley and Chester-le-Street in the same campaign. It is immaterial that the *Liber de Hyda* refers first to the gift to Beverley and then to Brunanburh,<sup>15</sup> for the first passage is apparently derived from William Ketell's *Miracula S. Johannis Episcopi Eboracensis*,<sup>16</sup> which associates the visit to Beverley with 937 more probably than with 934, and the second is a conflation of material from Florence of Worcester's chronicle and William of Malmesbury's *Gesta Regum*. Moreover *Alia Miracula S. Johannis*, avowedly a revision and an amplification of Ketell's *Miracula S. Johannis Episcopi Eboracensis*, tells of an invasion of English territory by the Scots, followed by their retirement to fight on favourable ground and a battle ending in the flight of their king. We know from other authorities, notably William of Malmesbury,<sup>17</sup> that all these things happened in 937, and we have no satisfactory evidence that any of them came to pass in 934, when Athelstan marched his army far into Scotland while Constantine apparently refused a general engagement.<sup>18</sup> Symeon, indeed, says in the *Historia Dunelmensis Ecclesiae* that in 934 Constantine, king of Scots, and Owen of Strathclyde were put to flight; but this statement appears neither in the Cuthbertine annals in the *Historia Regum*, §83, nor in the *Historia de S. Cuthberto*, which represent texts which Symeon was clearly using; and it is therefore an amplification of uncertain authority. On the

<sup>13</sup> Plummer, *Two Saxon Chronicles*, II, 140; A. H. Smith, *op. cit.*

<sup>14</sup> Symeon of Durham (Rolls Series), *Historia Dunelmensis Eccles.*, lib. II, xviii (I, 75-6), and *Historia Regum*, § 83 (II, 93). *Historia de S. Cuthberto*, §§ 26, 27, may seem to imply that the gifts were made in 937, but does not necessarily do so. (Symeon of Durham, I, 211, 212).

<sup>15</sup> *Liber de Hyda* (Rolls Series), 118, 123.

<sup>16</sup> *Historians of the Church of York* (Rolls Series), I, 263-4.

<sup>17</sup> William of Malmesbury, *Gesta Regum*, lib. II, § 131 and § 135 (I, 142, 151-2).

<sup>18</sup> Symeon of Durham, *Historia Regum*, §§ 83, 107 (II, 93, 124); *Historia Dunelmensis Eccles.*, lib. II, xviii (I, 76).

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other hand, an entry in the *Annals of Clonmacnoise* (sub anno 927, referring to 934) may be quoted for what it is worth: 'and yet the Scottish men compell'd him to return without any great victory'. Even if the author of *Alia Miracula S. Johannis* was wrong in associating Athelstan's visit to Beverley with his campaign in 937, his details about the military operations must refer to that year and represent an independent tradition about the campaign of Brunanburh. In the circumstances, his evidence must be considered important.

Can the same be said of Egil's Saga? It reads as though the battle at Vinheiðr was fought soon after Athelstan's accession, but such a battle against the Scots cannot easily be fitted into the events of 927. There are several chronological difficulties in the saga: according to it, Eric Bloodaxe arrived in England during Athelstan's lifetime, and Eric and Athelstan died about the same year,<sup>19</sup> whereas Athelstan's death occurred in 939<sup>20</sup> and the first notice in English texts of Eric's presence in this country is under the year 948 and the last is in 954.<sup>21</sup> For these reasons and others it has been suggested that Egil's Saga is what we should call a historical novel and not an authentic biography;<sup>22</sup> and some of those who have taken it to be originally authentic enough have considered its accuracy to have suffered during the two centuries before it was first written down about the year 1200. But Scandinavian scholars have recently propounded a revised chronology for the events of this and other sagas. They maintain that those who reduced the sagas to writing followed the system of dating worked out by Ari the Wise, and that Ari placed the events of the time of Harald Hairfair and his sons some fifteen years too early.<sup>23</sup> Egil's Saga, it is suggested, has been edited so as to bring the dating of its references to public events into line with Ari's chronology.<sup>24</sup> This theory certainly removes the difficulties in its dates: Vinheiðr is equated with Brunanburh,

<sup>19</sup> Egil's Saga, ch. 59, 67.

<sup>20</sup> See Murray R. L. Beaven, 'The Regnal Dates of Alfred, Edward the Elder, and Athelstan', *E.H.R.* (1917), xxxii, 517 ff.

<sup>21</sup> A. S. Chronicle, D 948; D, E and F 954.

<sup>22</sup> See A. Bley, *Eiglastudien*.

<sup>23</sup> See G. Vigfusson, *Corpus Poeticum Boreale*, II, 487-500; Halvdan Koht, *Inhogg og Utsyn*, pp. 34-51, and *Norsk Historisk Tidsskrift*, 5 R. VI, 146-168 and 5 R. VII, 425-438. On the other side may be quoted Finnur Jonsson, *Norsk Hist. Tidsskrift*, 5 R. VI, 1-15 and Johan Schreiner, *Norsk Hist. Tidsskrift*, 5 R. VII, 161-224. The balance of the argument seems to be with Professor Koht.

<sup>24</sup> See Per Wieselgren, *Svenska Historisk Tidsskrift*, 49 Årg., Häft 1, p. 35 ff.

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Eric Bloodaxe arrives in York at the proper time, and the apparent prolongation of Athelstan's life is accounted for by the explanation that the editor or a saga-teller substituted his well-known name for that of one of his less famous brothers<sup>25</sup> or simply for 'the English king'. The more this revised chronology is examined, the more convincing it appears in general, and the opinion that Egil's Saga is a historical novel is at least shaken, though a novelist might use Ari's chronology as well as the editor of a biography. But whether the saga is or is not authentic, its story of Vinheiðr must surely represent an Icelandic tradition of Brunanburh, with its date altered to fit Ari's scheme; and a campaign is precisely the sort of thing about which a saga is likely to be reliable. One who took part in it would bring home his story; well told, it would be treasured as an example of the saga-man's art; and his veracity on details of the fighting is not to be questioned simply because he went astray about a leader on the opposite side, making Olaf 'the Red' king of Scots and saying that he fell in the battle. An error of that kind no more undermines belief in the story of Vinheiðr than Snorre's mistakes about the sons of Godwin discredit him on Norwegian history. An editor writing the story down, or even a novelist using it, would have little interest in altering its details, though he might 'correct' its historical setting. When we come to examine this Icelandic tradition, its account of the campaign agrees in important essentials with the English tradition in *Alia Miracula S. Johannis*, written down about the same time, and is not incompatible with William of Malmesbury's older poem; and its account of the battle has a curious resemblance to yet another English tradition preserved in the forged chronicle of Ingulf.<sup>26</sup> Egil's Saga, then, cannot be neglected, and if its full details fit an otherwise possible battlefield, it is not entirely arguing in a circle to regard its credibility as strengthened.

If these witnesses whose veracity has been doubted are to be regarded in this light, the following indications about the site of the battle are to be deduced. It was fought at some spot to which the Scots and the vikings retired after invading and harrying part of Athelstan's dominions.<sup>27</sup> This place lay in Scottish territory, on the

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<sup>25</sup> The same mistake may be seen in the *Annals of the Four Masters*, 944 (=946), where Athelstan's death is recorded for Edmund's.

<sup>26</sup> Rev. C. W. Whistler, 'Brunanburh and Vinheið', *Saga Book*, Viking Club (1909), vi, 59; G. Neilson, *op. cit.*, 41.

<sup>27</sup> William of Malmesbury, *Gesta Regum*, lib. II, §135, (I, 151); 'Alia Miracula S. Johannis', *Historians of the Church of York*, I, 295; Egil's Saga, ch. 52.

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Scottish side of a river-crossing known as the *Scotorum Vadum*, which may be interpreted the Scots' wath or ford, and may or may not have been on a boundary-stream which Constantine's army crossed before invading England.<sup>28</sup> Since the retirement mentioned in English sources is compatible with Egil's story of the tryst at the hazelled field, the site should be for preference conspicuous and accessible. It should be near enough to a point on the coast to make possible Olaf's escape to his boats, but not too near, for the pursuit was apparently long; and the coast should preferably be the west coast, within reasonable reach of Dublin by sea.<sup>29</sup> The battlefield should supply the features which the account in Egil's Saga requires. Finally, remembering the names of the battle as well as the 'burgs' in Egil's Saga, we must look for some sort of stronghold.

The case for Bromborough shows poorly under these tests, strong though it is on purely philological grounds. The Scots must indeed have penetrated deeply into England if they came so far south. The wily Constantine would never retire into the corner of the Wirral except under compulsion, and would much less agree to it as the appointed place for a trial of strength. It was not in his territory, and it would be surprising if any stream in that neighbourhood were called the *Scotorum Vadum*. Olaf, indeed, could readily escape from the Wirral by boat to Dublin, and Athelstan's troops might spend hours chasing him across the peninsula to the Dee, but Constantine's retreat to Scotland would be hopeless unless he also could get away by sea. There is an earthwork at Bromborough,<sup>30</sup> but the game of fitting Egil's account to the locality does not promise success.

Burnswark, on the other hand, comes well through this historical test, though the philological evidence for it, good as far as it goes, is slender in comparison with that for Bromborough. In 927 Athelstan had taken possession of Cumbria, and according to Egil's Saga two earls with Norse names who ruled over 'Wales' deserted him and joined the Scots. Place-names which appear to be Norse in origin are fairly common in the lowlands of Dumfriesshire but not in the hills, and Athelstan's frontier may have included some territory on the north side of the Solway. The boundary, therefore, may have run close to Burnswark. As Neilson observed, Olaf's ships could lie on the north

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<sup>28</sup> *Alia Miracula S. Johannis*, loc. cit.

<sup>29</sup> Anglo-Saxon Chronicle, A, B, C, and D, 937.

<sup>30</sup> E. S. Armitage, *Early Norman Castles of the British Isles*, p. 32.

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shore of the Solway ; the outstanding landmark of Burnswark hill, with the Roman road crossing its shoulder, was most suitable for an agreed meeting-place ; Constantine, having ravaged part of Northumbria, could readily retire there before the battle and after it could flee north to Alban. The head of the Solway, Neilson thought, was the *Scotorum Vadum* ; and at Burnswark the ground with its steep hill and its earthworks seemed in his eyes to fit Egil's account admirably.

But Neilson's case for Burnswark, like the evidence of medieval traditions, should be subjected to examination. His argument on the general locality of the battlefield depended on the reference in *Alia Miracula S. Johannis* to the *Scotorum Vadum*. For his identification of it with the Solway his main authority was the 14th century writer Fordun, who mentioned the Scots' Wath more than once, and clearly thought it was the Solway,<sup>31</sup> knowing also the name ' the Scots Water ' applied to the Forth.<sup>32</sup> On this latter point, Fordun is supported by a 12th century description of Scotland.<sup>33</sup> A doubt, however, is aroused by a statement in Reginald of Durham's *Vita S. Oswaldi*, written in 1165, that the early Anglian kingdom of Bernicia extended from the source of the Tyne ' usque in Scotwad, quod Scottorum lingua Forth nominatur ',<sup>34</sup> and a 12th century Durham monk seems more likely to have known what his contemporary at Beverley meant by ' the Scots' Wath ' than the 14th century Scotsman Fordun. A site somewhere near Stirling would fit many requirements : Constantine and Athelstan would fight on their borders, Athelstan could retire south through Dunbar, as he is said to have done in *Alia Miracula S. Johannis*, and Olaf could escape to his ships beached somewhere on the Clyde, as probable a harbour for them as the Solway. But a site in that neighbourhood, with names which may have been Brunanburh or Wendune, and with earthworks, heath, wood and stream so placed that they fit the account in Egil's Saga, is still to be found, and the search is not promising ; and an examination of manuscripts removes all reason for pursuing it. In the Bodleian MS. of this *Vita S. Oswaldi* (Fairfax 6)

<sup>31</sup> Fordun, i, 2 : ' Flumen Esk quod dicitur Scotiswath sive Sulwath ' ; iii, 2 : ' Esk, sed alias dicitur Scotiswath '. See G. Neilson, *op. cit.*, p. 39, and *Annals of the Solway* (1899), p. 18 ; Plummer, *Two Saxon Chronicles*, II, 262.

<sup>32</sup> Fordun, i, 2 : ' Flumen de Forth, quod . . . dicitur . . . mare Scotticum '.

<sup>33</sup> W. F. Skene, *Chronicles of the Picts and Scots*, p. 136 : ' illa aqua optima, que Scottice vocata est Froch (*i.e.* Forth), Brittanice Werid, Romane vero Scottewatre, id est Aqua Scottorum '. See also Plummer, *op. cit.*, II, 267.

<sup>34</sup> Symeon of Durham, *Vita S. Oswaldi* I, lv (Rolls Series, I, pp. 339, 382).

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there is no trace of the explanatory clause 'quod in Scottorum lingua Forth nominatur', and in John Tode's 16th century transcript of it (British Museum, Harleian 4843) the clause is inserted in the upper margin and reads 'quod modo scottorum lingua forth nominatur'.<sup>35</sup> These seem to be the only extant manuscripts of the *Vita*, and the suggestion conveyed by the printed text that Reginald of Durham knew the Forth as 'Scotwad' appears to be due to faulty editing. Fordun's evidence that the Scots' Wath was on the Solway may therefore stand.

We must see next what sort of a battlefield Burnswark has to offer. Neilson thought that Olaf and the Scots camped in the Roman earth-work immediately to the north of Burnswark hill, and Athelstan's advanced force and perhaps his whole army in that on its southern slope. If forces were so disposed, an observer on the top of the hill could count the troops camping on the lower slopes on the south side, and Egil's ruse of using more tents than his men needed would be of no avail. According to the saga, Egil pitched his tents on the level heath, to the south of which was the burg where Athelstan camped when he came up; and that burg was sufficiently far from Olaf's camp to make some hours necessary for the final journey of the messengers who passed between the two kings, their earlier errands having been completed while Athelstan had still some way to go before he came up to his advanced force. A river and a wood were the boundaries of the heath on which the battle was fought; but the stream near Burnswark farm at the eastern end of the hill, to which Neilson referred, is a mere trickle, and though it flows through boggy ground it is not a serious tactical feature. Moreover, in the saga, the wood was on the right of Athelstan's army and the stream on their left,<sup>36</sup> and Neilson's burn would be on the right of any force attacking the hill from the southeast. Finally, the saga states that the chosen field had to be level, where a great host could be arrayed; but two armies such as were engaged could not conceivably manoeuvre in the way described in the saga for two days on the top of the hill.<sup>37</sup> It is only some 500 yards long and 200

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<sup>35</sup> Acknowledgment for this information must be made to the Keeper of Western mss. in the Bodleian Library and the Keeper of mss. in the British Museum. John Tode's transcript is incorrectly cited as Harl. 4853 in Symeon of Durham (Rolls Series), I, xix.

<sup>36</sup> Egil's Saga, ch. 54: 'They (*i.e.* Thorolf's men in Athelstan's army) had their shields before them, but the wood was on their right: they let it cover them on that side'. (E. R. Eddison, *Egil's Saga*, 1930, 108-109).

<sup>37</sup> As is noted by O. G. S. Crawford, 'The Battle of Brunanburh', *ANTIQUITY* 1934, VIII, 338-9.

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yards broad, and the sides are everywhere steep, breaking out in places into little craggy outcrops of rock. Olaf had scraped together every available man, compelling the vikings of Lough Rhee to join him.<sup>38</sup> According to Symeon of Durham,<sup>39</sup> he had crossed the sea with 615 ships, a number too exact to be lightly dismissed; he may therefore have had some 20,000 men. Constantine's army must have been worthy of the alliance; Athelstan's was at least large enough to defeat both the Scots and the vikings.

A spur from the ridge of which Burnswark hill forms part runs roughly southeast from the hill and terminates two miles away in a rounded knoll, of which the top, above Middlebie hill farm, is between 450 and 500 feet above sea level; Burnswark hill itself reaches 920 feet. A mile further in the same direction lies the Roman fort of Blatobulgium or Birrens, on a low bluff above the Mein Water, in the angle formed by its confluence with the Middlebie burn. The Roman road from Carlisle approached Birrens from the southeast, and led on past it and over the rising ground of Middlebie hill by a route not marked on the ordnance map until, at a point in the direct line from Birrens to Burnswark hill, it crossed the stream flowing southwards from Burnswark farm. From this crossing to the saddle beside Burnswark hill its track is marked on the map and can readily be picked out in places on the ground. The crossing of the burn was at the lowest suitable point, for downstream the valley becomes a narrow, steep-sided ravine. Apart from this valley and the similar gorge of the Middlebie burn parallel to it on the east, on the other side of the spur on which is Middlebie hill, the country south and southeast of Burnswark hill as far as the Mein Water is a rolling upland of reasonably easy slopes and long spurs with rounded contours, a possible battleground for two armies meeting at the conspicuous landmark of the hill itself. If the English wished to conceal the weakness of their advanced guard, they would seek a position visible by their enemies but not under close observation. The knoll of Middlebie hill would meet this and other tactical needs, and squares well with the story in the saga. The tents, we are told, were pitched where the heath was narrowest between wood and water, but yet a long way off from Olaf's camp. A force on Middlebie hill facing Burnswark would have on its right the gorge of the Middlebie burn,

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<sup>38</sup> *Four Masters*, 935 (=937); *Chronicon Scotorum*, 936; *Annals of Clonmacnoise*, 931.

<sup>39</sup> Symeon of Durham, *Historia Regum* § 83, II, 93, and *Historia Dunelmensis Eccles.*, lib. II, xviii (I, 76).

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wooded perhaps then as now, and on its left the burn from Burnswark farm, which thanks to its deep valley near Middlebie hill might there be a tactical feature worthy of description as a 'water', even though it would hardly be such nearer to its source. The tents of a force in this position would be on the upland, in a place which even today is not far from moorland; behind them the ground would fall away southwards to the ramparts of Birrens, a burg to which Athelstan would come if he approached by the Roman road from Carlisle. Finally, there is the ruse of the tents. The saga says that there were no men in every third tent and few in any one, and the tents stood high, so that there was no seeing over them; and the Scots were thus misled about the strength of the English advanced force. From Burnswark hill, Birrens camp is invisible and Middlebie hill can clearly be seen. A calculation from the contours on the map indicates that the line of vision from Burnswark hill should skim the top of Middlebie hill and the slopes between it and Birrens; it may in fact be blocked by trees of recent growth rather than the ground itself. The point is easily demonstrated on the spot. Burnswark hill is conspicuous as one approaches Birrens from the southeast, but as one drops down to the Mein Water it sinks from view behind the trees on the rising ground to the north of the camp, and disappears just before one reaches the stream. Olaf's observers, therefore, if stationed on Burnswark hill, could see tents pitched on the high ground at Middlebie hill, and could well be misled by camouflage and propaganda about the strength of the forces there and in Birrens camp.

Neilson's conceptions, then, may be modified in this way, if Burnswark was the site of Brunanburh; and the arguments in favour of Burnswark are strong. As far as the history of its name is concerned, it ranks among the possible sites as second to Bromborough only, and a good second at that, defective in quantity rather than quality. The English traditions point more clearly to the neighbourhood of Burnswark than to that of any other suggested site; and if the agreement between the Icelandic tradition in Egil's Saga and the topography of Burnswark is a coincidence, it is a remarkable one. Accounts preserved orally for 250 years, in England or in Iceland, may be less certain evidence than one would wish to have; but the points of agreement between three such separate traditions and the older evidence are striking, and we have nothing more definite in which to place our trust. Unless more perfect means of proof comes to light, the case for Burnswark must continue to hold the field.



# Some Stone Monuments

by C. W. PHILLIPS

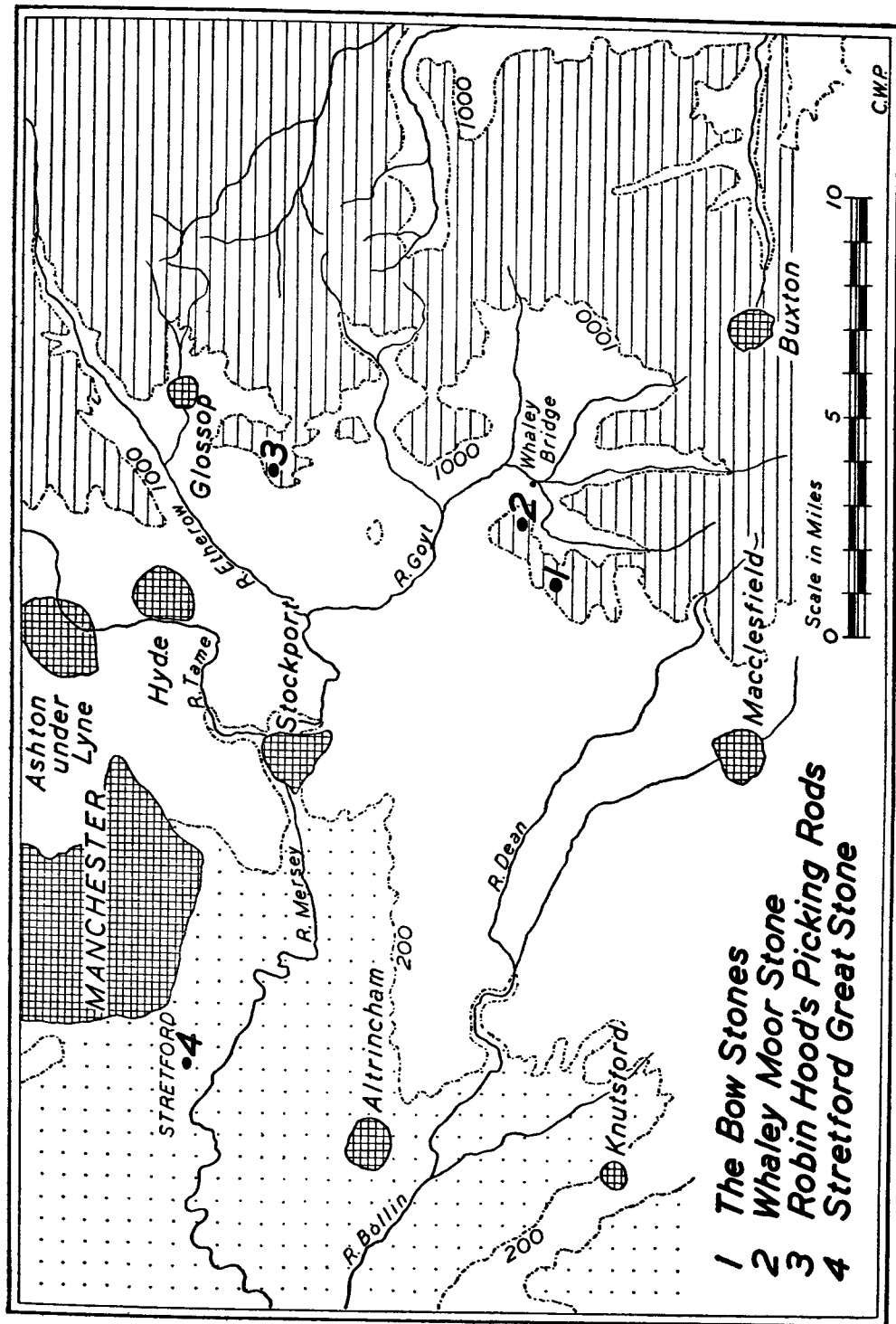
**A**MONG the many ancient stone monuments in the British Isles there are few which are so little known as the small related group found standing chiefly on high moorland overlooking the Cheshire Plain on the southeast side of Manchester.

Four survive in various stages of decay and they take the form of large roughly rectangular or oval blocks of stone with two adjacent circular or rectangular sockets on their upper faces, which sockets either still contain or have contained upright stone pillars.

The following table gives their names and localities and their general relation to each other is shown in the sketch map.

Name	Parish	Ordnance sheet	Latitude	Longitude	Height above sea level
The Bow Stones (Park Moor Stones)	Lyme Handley	Cheshire 29 N.W.	53° 19' 42"	2° 2' 23" W	1250'
Robin Hood's Picking Rods	Chisworth	Cheshire 11 S.E.	53° 24' 52"	1° 59' 28" W	1200'
Standing Stone or Plague Stone (The Dipping Stone)	Yeardsley cum Whaley	Cheshire 29 N.E.	53° 19' 55"	2° 0' 25" W	1100'
The Great Stone	Stretford	Lancashire 104 S.W.	53° 27' 17"	2° 17' 45" W	90'

It will be seen that with the exception of the Stretford Great Stone these monuments are set in lofty remote places, but, in spite of this, they are all close to ancient lines of communication. The most convenient method of dealing with them will be to describe each in detail and then to consider the group as a whole.



## ANTIQUITY

### THE BOW STONES (PLATE I)

This monument stands on the westernmost edge of the Pennines overlooking Wilmslow, Cheadle, and Altrincham. The ridge has an average height of about 1250 feet and is bounded on the east side by the deep valley of the Todd brook running northwards to join the river Goyt at Whaleybridge.

A moorland road called the Bowstone Gate runs along this ridge past the monument and is part of an old route from Disley to Macclesfield.

The Bow Stones is the most perfectly preserved of the monuments and is protected from injury by an iron railing. The base stone is a flat topped oval mass 6 feet 4 inches long and about 4 feet wide set firmly in the ground. The two pillars of millstone grit stand in round socket holes which Lysons says are 11 inches deep<sup>1</sup> but the stones are now cemented in position. The pillars are cylindrical, taper slightly towards the top, lean a little together, and are 4 feet and 3 feet 2 inches in height respectively. The tops are rounded and are given a rough capital effect by two grooves one inch apart cut round the pillar at a distance of 5 inches from the summit. Of the two the shorter one has preserved its detail best, besides showing some badly weathered but unmistakable signs of an interlaced decoration on the summit above the ring-grooves. Each of the pillars has had a number of large initials cut on it at some fairly distant date and, more important, each carries a plain incised cross which was clearly not part of the original scheme of decoration. The only piece of local lore about these stones is that 'Robin Hood's men used to string their bows here'.

### ROBIN HOOD'S PICKING RODS (PLATE II)

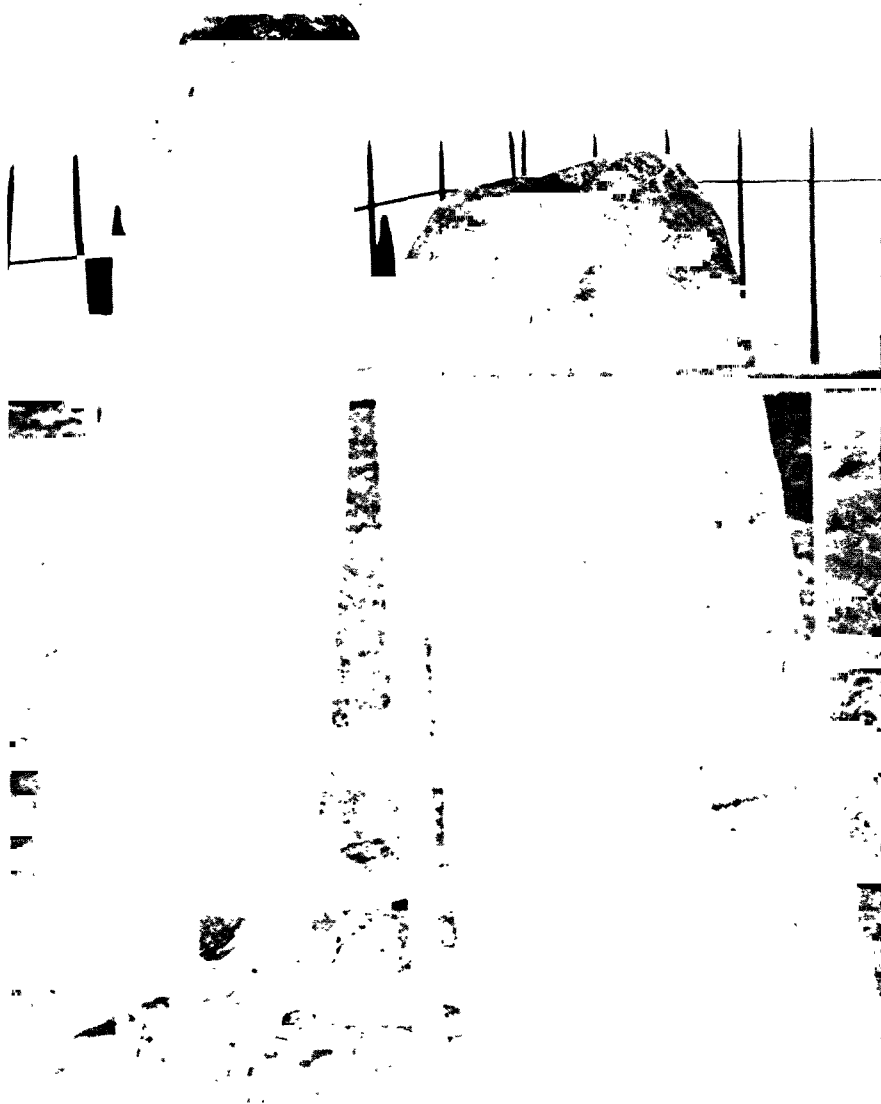
This monument stands by the side of the track running east and west along the summit of the ridge to the south of Chisworth, a little west of Far Slack Farm. Apart from a few circumstantial differences it is safe to say that in its original form the 'Picking Rods' was very similar to the Bow Stones. (A picking rod is a weaver's implement for placing lines of weft between the divided warp).

The base stone is a large irregular oval of natural form 6 feet 4 inches long, 3 feet 10 inches in maximum width, and 1 foot 6 inches in depth. The two pillars are now of unequal height and both have

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<sup>1</sup> S. and D. Lysons, *Magna Britannia* ; Cheshire, p. 459.

PLATE 1



THE BOW STONES (see p. 296)  
ph. T. D. Kendrick

PLATE II

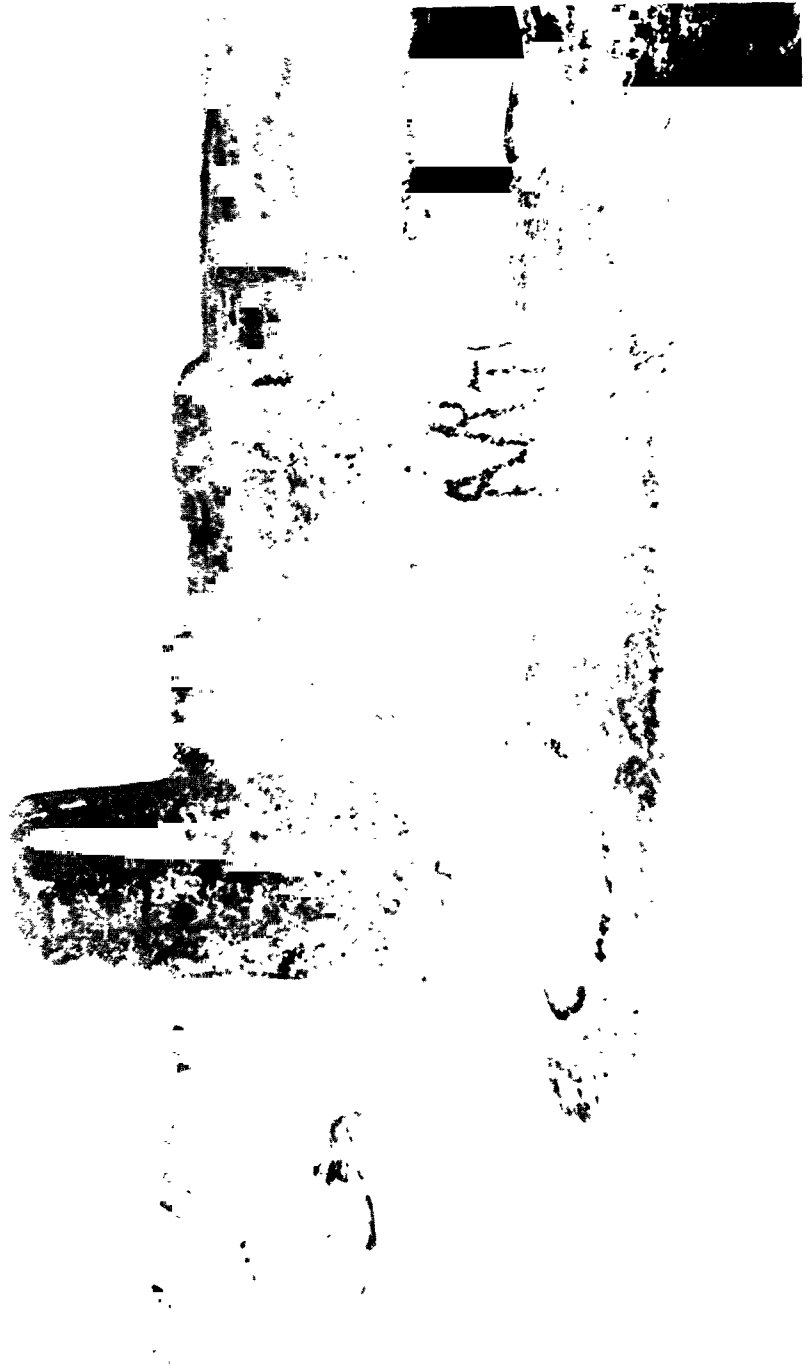


PLATE III



STONE ON WHALEY MOOR (see p. 297)

PLATE IV



THE STRETFORD GREAT STONE (see p. 207)

## SOME STONE MONUMENTS

lost their upper part. One is 3 feet 7 inches in height, tapering from 17 inches to 14 inches in diameter; the other is 2 feet 6 inches high with a decrease in diameter from 19 inches to 18 inches. Both are cemented into sockets 21 and 23 inches in diameter respectively. There is no decoration beyond a large N cut deeply in the flattened top of each and the usual initials of hikers.

We are fortunate in seeing the monument in such good condition today for in 1810 the longer pillar and other broken pieces were used in making a farm road nearby<sup>2</sup> but they have been rescued to the extent that the larger pillar has been replaced in its socket and another fragment—apparently a part of the shorter pillar—is built into a field wall about 10 feet to the west.

### STANDING STONE ON WHALEY MOOR (PLATE III)

This name is an incorrect description of the monument in its present form for it is a double socketed base-stone of the type already described, and the pillars which it once carried were thrown down more than 100 years ago and have disappeared.

The stone stands on the western verge of Whaley Moor on the lower slopes of Black Hill and overlooking the valley of the Todd brook to the southwest. The distance from the Bow Stones is not more than  $1\frac{3}{4}$  miles as the crow flies, and it is possible with the naked eye to pick out the Bow Stones against the western skyline.

In describing the stone Lysons says that the fragment of a stone pillar 2 feet 3 inches long was formerly to be seen near it.<sup>3</sup>

The stone is a roughly rectangular mass of millstone grit 4 feet long and varying in width from 21 to 32 inches, containing two rectangular sockets with rounded corners one of which has had part of its side broken away, and the only thing which distinguishes it from the base-stones of the other monuments is its general rectangularity.

Local tradition calls it the 'Dipping Stone' and says that the sockets were filled with vinegar in which to dip coins when trade was carried on in time of plague, in fact 'at the same time that the grave-stones were put up by the Bow Stones'.

This refers to some lonely graves of plague victims belonging to the 17th century which are still to be seen in a small close on the summit of the ridge about a quarter of a mile north of the Bow Stones.

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<sup>2</sup> William Bateman, *Vestiges*, 1848, p. 171.

<sup>3</sup> Lysons, *op. cit.*, p. 459.



## ANTIQUITY

### THE STRETTFORD GREAT STONE (PLATE IV)

This, the last of the four, presents a great contrast to the others in its position. It stood from time immemorial on the south side of the Roman road from Manchester to Chester in the parish of Stretford on the northeast side of Gorse Hill.

For its better preservation the Stretford Urban District Council in 1925 moved it 100 yards to a garden plot at the entrance to the new Gorse Park.

In form it is another roughly rectangular base-stone of millstone grit with two sockets like that on Whaley Moor.

It is 4 feet 9 inches long and 1 foot 9 inches wide, and differs from that on Whaley Moor because one end of the stone has been worn down in a way which is consistent with its use as a mounting block.

Tradition has it that the stone was thrown by a Roman giant named Tarquin from the Roman camp at Manchester, and also that it was used as a plague stone in the same manner as that on Whaley Moor.

What is the age and purpose of these stones? The clue to their age is provided by the Bow Stones. These two pillars are the cylindrical shafts of Anglian crosses. The fillet surrounding the top of each and the traces of interlaced ornament seem decisive on this point. They were stone staff-roads of the type still to be seen at various places in the North of England, but here remarkable for being set close together in pairs.<sup>4</sup> Of particular importance for our purpose is the fact that examples of single crosses of this type exist at Ilam (Staffs), Leek (Cheshire), Disley (Cheshire), and Brailsford (Derbyshire), all, and particularly the Disley example, at no great distance from our area. In well-preserved specimens the upper part of the cross above the fillet becomes square in section and is elaborately worked on its faces, but this part is missing in all our examples.

A peculiar feature of the Bow Stones is the markedly phallic appearance of the pillars as they exist today. It is clear that since the upper parts of the crosses were broken off someone has been at pains to produce this effect in some detail, and in view of the crosses cut on the shafts it is possible that this may be a remote event in their history. The result of this deliberate adaptation of the Bow Stones has been to suggest another period and purpose for the stones, but I am indebted to

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<sup>4</sup> W. G. Collingwood, *Northumbrian Crosses of the pre-Norman Age*, pp. 5-8.

## SOME STONE MONUMENTS

Mr T. D. Kendrick, F.S.A., of the British Museum, for pointing out their true character.

It follows that Robin Hood's Picking Rods are almost certainly the lower parts of two other crosses, and the two base stones at Whaley Moor and Stretford have this much in common with them that they are the bases of similar monuments, though the crosses which they carried had a rectangular section at the base.

With regard to the actual date of these crosses there is no real evidence to go on except that they are in general Saxon, though it is probable that they are not older than the 10th century.

It is interesting to recall the famous pair of cross-shafts in the old market place at Sandbach (Cheshire) in this connexion, though here they stand in separate socket-stones and have a different character.

With regard to their purpose there can also be no certainty except that they were probably boundary marks. J. C. Cox has suggested that double-crosses may mark the meeting-point of more than one ecclesiastical division.<sup>5</sup> In the time of Charles I, Robin Hood's Picking Rods were known as 'the two standinge stones called the Maiden Stones' and at the present day they mark the meeting place of the townships of Ludworth, Chisworth, Mellor, and Rowarth.

The stone on Whaley Moor is also at a point where a boundary makes an angle, and it has been suggested that two small late Saxon crosses in the grounds of Lyme Hall not far away came from here.

Thus there is still much that is uncertain about these peculiar monuments, but it has seemed worth while to place them and their limited distribution on record once more.

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<sup>5</sup> J. C. Cox, 'Early Crosses in the High Peak', *The Athenaeum*, 9 July, 1904, p. 562.

# The Bee-hive Tombs of Mezek\*

by B. FILOV

*Director of the Bulgarian Archaeological Institute, Sofia*

SOME important archaeological finds have been made in the course of recent excavations in Thrace, throwing a completely new light on its relations with Greece. Among the most important are the tholos-tombs or bee-hive tombs (*Kuppelgräber*) of Mezek.<sup>1</sup>

Mezek is a village in southern Bulgaria, quite near the Greek frontier; it lies at the foot of the easternmost outlier of the Rhodope range, about 6 km. southwest of the railway station of Svilengrad, from which it can easily be reached in a car. Several tumuli can be seen near the village, chief among them being the hill called Mal-Tepe (the 'hill of the treasure'), 14 m. high and about 90 m. in diameter. As far back as 1903, when Mezek was still in Turkish hands, the bronze statue of a boar was discovered near the hill, and four years later was placed in the museum at Constantinople.<sup>2</sup> This find led the museum authorities to make excavations there, but with no result of any note, and it was not until 1931 that some of the local residents were able to penetrate to the burial-place beneath the hill. All their finds are carefully preserved in the national museum at Sofia. At the same time, the Bulgarian Archaeological Institute has undertaken a complete investigation on the actual site, with the result that a number of important details have been ascertained.

It has been established that the hill was originally encircled with a strongly built *krepis* of huge flagstones, of which only slight traces remain. The entrance to the burial-place (1.55 m. wide and 2.62 m. high) was closed with great stone slabs (FIG. 1); only the uppermost of these slabs is missing, and it is demonstrable that this was removed or broken in ancient times. A grown man could easily creep into the

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\* Trans. by R. G. Austin.

<sup>1</sup> A detailed account will shortly appear in *Bulletin de l'Institut archéologique bulgare*, vol. XI.

<sup>2</sup> O. Hamdy, 'Le sanglier de Mezek', *Revue archéologique*, 1908, I, pp. 1-3.

## THE BEE-HIVE TOMBS OF MEZEK

interior through the aperture so formed. On either side of the entrance were unimportant remains of late buildings ; their function is not clear, but they show that from the beginning the structure was not completely filled in, and that its entrance was kept open for a long time, which suggests repeated use of the burial-place.

The total length of the burial-place itself (FIG. 2) is 29.95 m. ; it consists mainly of a passage 21.50 m. long, 1.55 m. broad, and 2.60 m. high (FIG. 3). This passage is also constructed of huge flagstones (rhyolite and rhyolite-tufa), joined horizontally with great iron rivets and vertically with strong oak pins. The roof is made of corbelled flagstones, and in cross-section is of regular triangular formation. The passage leads directly to two rectangular chambers, similarly roofed (FIG. 4), the first measuring 1.50 m. by 1.26 m. by 3.20 m., the second 1.82 m. by 2.12 m. by 3.60 m. The burial-chamber proper lies at the end of the passage ; it is round, with a bee-hive shaped dome (FIG. 2), and in form and construction shows a remarkable resemblance to the Mycenaean bee-hive tombs (*e.g.* the tomb of Atreus<sup>3</sup>), in fact only differing in its smaller dimensions ; it is only 3.30 m. in diameter and 4.30 m. high.

The entrance to this chamber (.72 m. broad and 1.50 m. high) was closed by a folding bronze door, still standing in its original position (FIG. 5) ; a number of knob-shaped ornaments were originally fixed to it, giving the appearance of large nails driven into the fabric, but these have now fallen off. The door-handle, which has likewise fallen off, has been preserved ; it was shaped like a lion's head with a strong ring in the jaws.

At the rear of the burial-chamber, let into the floor, stands a coffin-rest, made from a single huge block of stone (FIG. 8), measuring 2.40 m. by 1.12 m. by .76 m. To the right and left are two stone chests, originally closed with stone slabs. To the edge of the coffin-rest was fixed a single iron bar, still preserved in its entirety.

The coffin-rest stood empty, and the two chests had already been opened and contained no offerings. But on the floor of the domed chamber, and on the covers of the chests, which had been pushed on one side, were found several large bronze and clay vessels, while various other articles of gold, silver, bronze, and iron lay scattered in the other rooms. Plainly the tomb had not been rifled, but for some reason the original contents had already been removed or destroyed in antiquity.

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<sup>3</sup> See ANTIQUITY, 1936, X, 412-15.

## ANTIQUITY

It was not possible to determine whether the objects found belonged to the original burial or to a later one.

Careful investigation of the tomb proved that it had in part undergone renovation, and that it was used repeatedly as a burial-place. The passage was evidently not paved originally; the existing floor, made of huge, roughly worked stone slabs, was added at a later date, when between the slabs was also built in a stone door, probably to block the entrance to one of the two rectangular chambers. These two chambers, as well as the domed room, were similarly floored at a later period; the original floor, which came to light after the later one had been removed, was built with much greater care, with large flag-stones, well polished and accurately fitted.

Between the two floors of the rectangular chambers were discovered, intact, two cinerary interments, containing, among various ornaments, two silver drachmae of Alexander the Great, so that they can be dated to the last decades of the 4th century B.C. But these graves were probably not made until the period when the tomb was renovated, and have nothing to do with the earlier funeral ceremonial. Therefore the tomb itself is clearly older, and must date from the first half of the 4th century B.C. at the latest.

Only the more important finds can be noted here. First, there were several golden ornaments, notably two buckles, important as showing the peculiar characteristic style of the native Thraco-Scythian art (FIG. 13). Noticeable, too, is a heavy, crescent-shaped iron breast-plate, mounted in silver and decorated with finely-wrought ornaments (FIGS. 6, 7). A splendid bronze candelabrum was also found (fragments of it were lying in different places), surmounted by a statuette (.227 m. in height) of a young dancing satyr, holding a large calyx in his uplifted right hand (FIGS. 9, 10). On his head the satyr bears a calathiscus, showing him to be a calathiscus-dancer. This statuette appears to date from the early hellenistic period: it is a variation of a well-known type of dancing satyr, best represented by the lovely marble statue in the Berlin Museum (no. 262) and by one in the British Museum (no. 1656) which is in better preservation. Remarkable also are three large bronze lamps, one of which has two wicks and the others three. Finally there is an extremely well-preserved egg-shaped bronze pail ('bell-pail'), decorated under the handle-loops with great soldered palmettes (FIG. 11).

The two cinerary interments yielded mainly finely-wrought ornaments of gold (FIGS. 14, 15), several beads of glass and clay, and a little flask of coloured glass.

## THE BEE-HIVE TOMBS OF MEZEK

Another tomb was uncovered, southwest of Mezek, in an artificial mound on the peak called Kurt-Kale (FIG. 16). It is likewise constructed of large flagstones, and contains one rectangular antechamber (2 m. by 1.74 m. by 2.60 m.), and a round, bee-hive domed room (3.57 m. in diameter, 3.45 m. in height). There was no passage. Over the entrance, now lying fallen beside it, was a large moulded flagstone, constituting the only decoration of the façade. The entrance itself was closed with great stone blocks. The roof of the antechamber is constructed in a quite unusual manner—it consists of large flagstones, laid cross-wise over the corners of the room at a height of 1.65 m. above the floor (FIG. 12). This produces a small square, itself in turn made smaller by three more layers of flags also laid cross-wise over the corners, until finally a rectangular opening .57 m. by .82 m. is left, closed by a single slab. The entrance to the domed chamber is 1.20 m. high and .65 m. wide at its base, .63 m. at its top. It is bounded by three large flagstones, decorated with a simple moulding on the edge (FIG. 12). The domed chamber is identical in form with that at Mal-Tepe.

The tomb at Kurt-Kale had already been pillaged and partly destroyed in antiquity, so that nothing was found there except some bones of horses and fragments of an ordinary clay amphora with pointed base, lying near the entrance. Only its great similarity with Mal-Tepe enables us to date it to the 4th century B.C.

The bee-hive tombs of Mezek are not the only examples of the kind known to us in Thrace. An exactly similar grave was uncovered in 1891 near Lozengrad (Kirk-Kilisse).<sup>4</sup> In the mountainous region west of Mezek smaller bee-hive tombs have been brought to light, but have not yet been examined with any care. Lastly I must mention one north of Plovdiv, near Rachmanlij, uncovered as early as 1851 and still only superficially investigated. These finds show at any rate that tombs of the type built at Mal-Tepe and Kurt-Kale were wide-spread in ancient Thrace.

I cannot discuss here in detail the problem of the relationship of these tombs to those Mycenaean ones which they so closely resemble. But I would emphasize the fact that such tombs are known to be no longer found in Greece after the Mycenaean period. The Thracian type, going back only to the 4th century B.C., cannot therefore be

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<sup>4</sup> F. W. Hasluck, *Annual of the British School at Athens*, 1910-11, XVII, 76-79.

## ANTIQUITY

explained as an imitation of contemporary Greek tombs. It must rather be regarded as representing a far older native tradition, in which we may justifiably postulate Mycenaean influence. On the other hand, there are definite 'Mycenaean' elements also in the finds from Trebenischte, which belong to the end of the 6th century B.C. The Thracian bee-hive tombs and the finds from Trebenischte are similar phenomena and complementary to each other, which we must explain in the same way. Doubtless it is here a question of a late echo of Mycenaean influence, which must trace back to the zenith of Mycenaean culture ; and we are justified in assuming that this culture struck far deeper roots in Thrace and Macedonia than one is usually inclined to believe.<sup>5</sup>

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<sup>5</sup> See my paper 'Thrakisch-mykänische Beziehungen' in *Revue internationale des études balkaniques*, 1937, IV.

PLATE I



FIG. 1. ENTRANCE TO THE BURIAL PLACE, MAL TEPE, MEZEK (see p. 300)

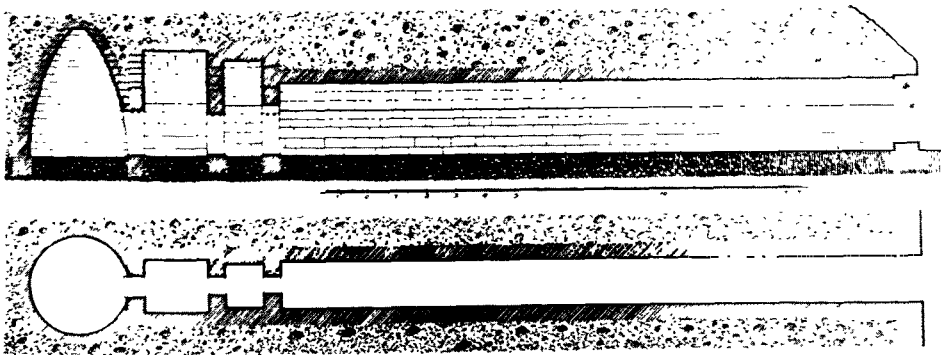


FIG. 2. BURIAL PLACE, MAL TEPE : SECTION (see p. 301)



PLATE II



FIG. 1. VIEW THROUGH RECTANGULAR CHAMBERS, MAL TI PE, SHOWING COIL-IN-REST AT END (see p. 304)



FIG. 3. PASSAGE LEADING TO RECTANGULAR CHAMBERS, MAL TI PE (see p. 304)

PLATE III



FIG. 5. BRONZE DOOR OF TOMB, IN ITS ORIGINAL POSITION (see p. 391)

PLATE IV



FIG. 6 CRESCENT-SHAPED IRON BREAST-PLATE (see p. 302)  
(for enlarged detail see FIG. 7)

PLATE V

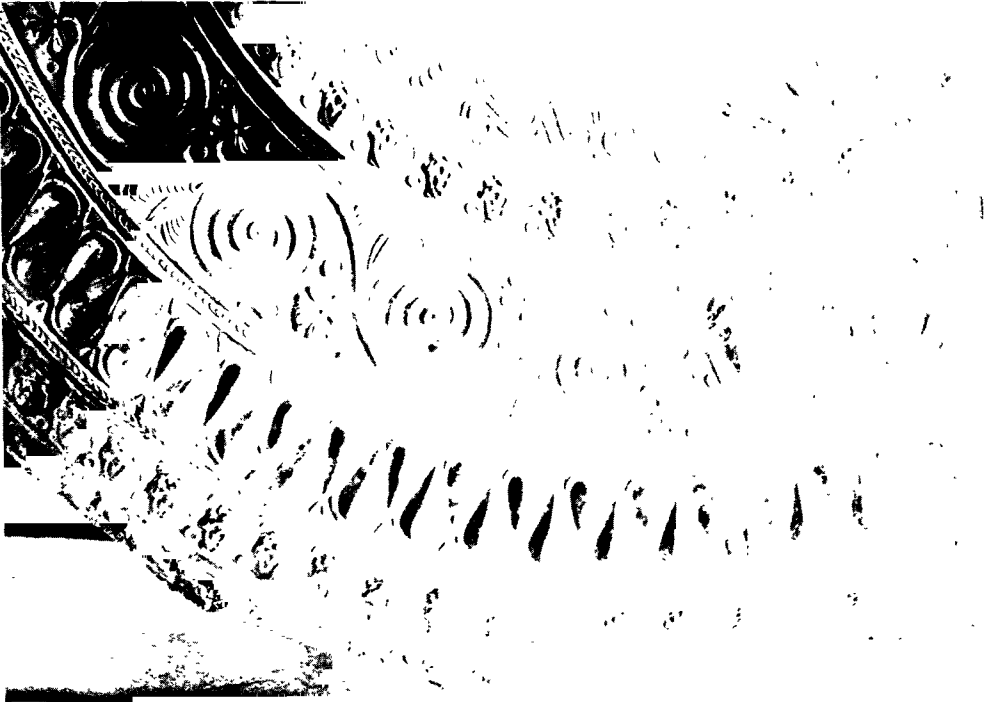


FIG. 7. ENLARGED DETAIL OF BREAST-PLATE (see FIG. 6)

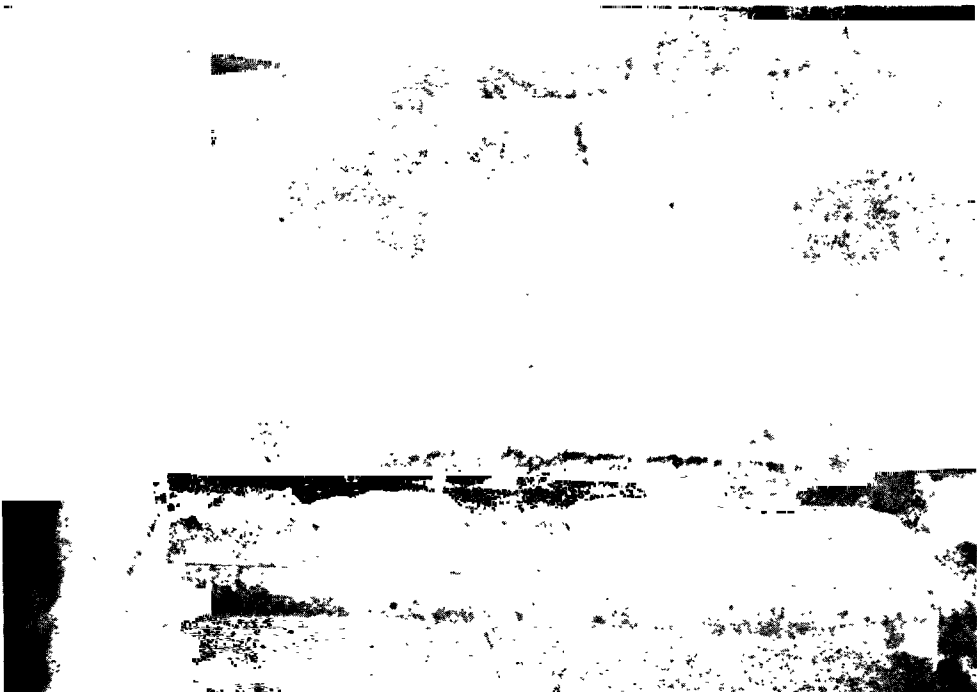


FIG. 8. COFFIN REST, MADE FROM ONE HUGE STONE (see p. 301)

PLATE VI



FIGS. 9, 10 BRONZE CANDLELABRUM, WITH DANCING SATYR—HELLENISTIC PERIOD (see p. 302)



FIG. 12. ENTRANCE TO DOWED CHAMBER, KURI KALE, NIAR MEZEK  
(see p. 303)

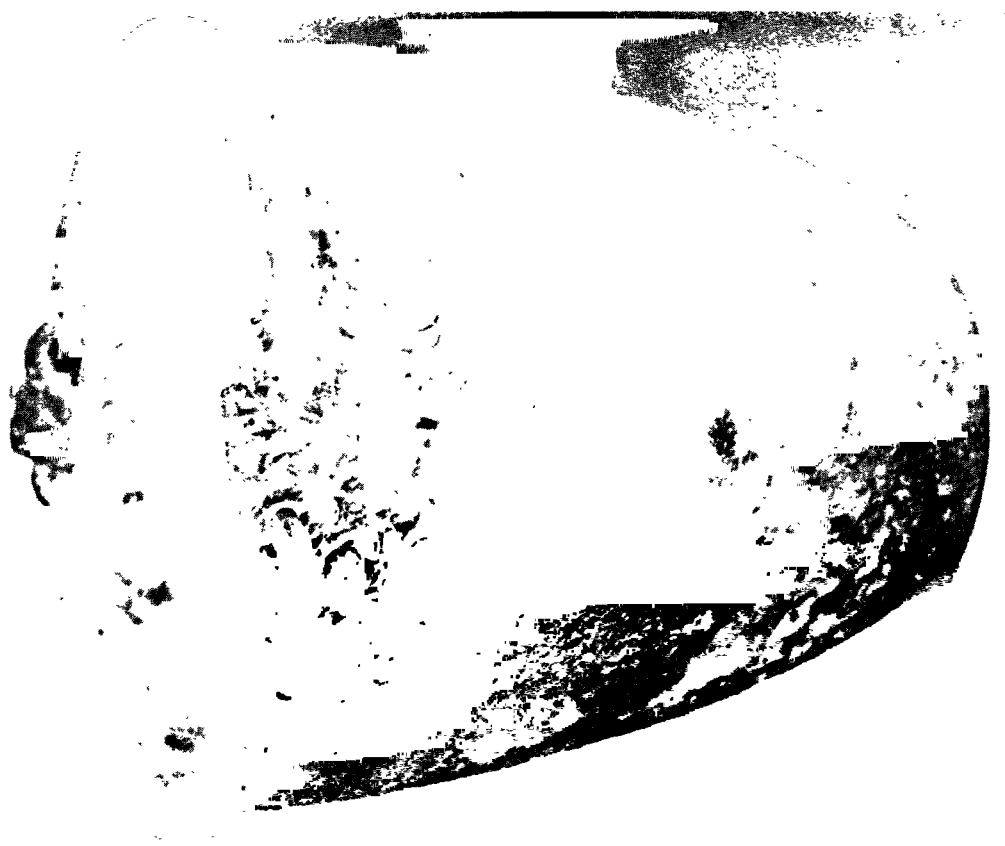


FIG. 13. BOWL-SHAPED BRONZE PAIL, WITH SOLID RLD PALMETTES (see p. 302)

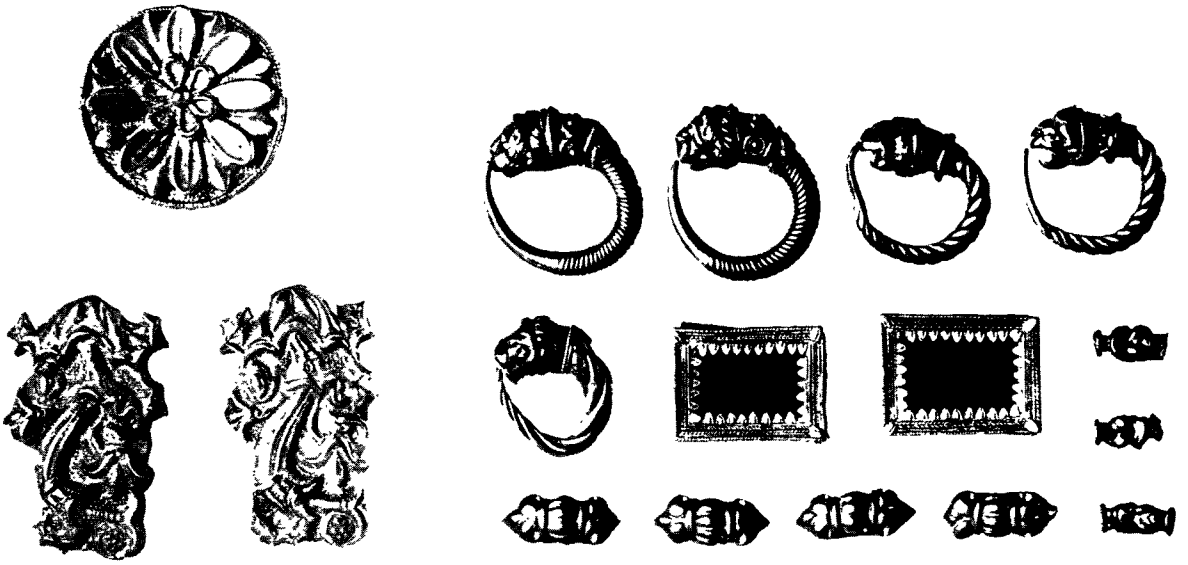


FIG. 13. GOLD BUCKLES CHARACTERISTIC OF THRACO-SCYTHIAN ART, MAL TEPE (see p. 302)

FIG. 14. GOLD ORNAMENTS FROM CINERARY INTERMENT, MAL TEPE (see p. 302)



FIG. 15. GOLD ORNAMENTS FROM CINERARY INTERMENT, MAL TEPE (see p. 302)

# THE BEE-HIVE TOMBS OF MEZEK

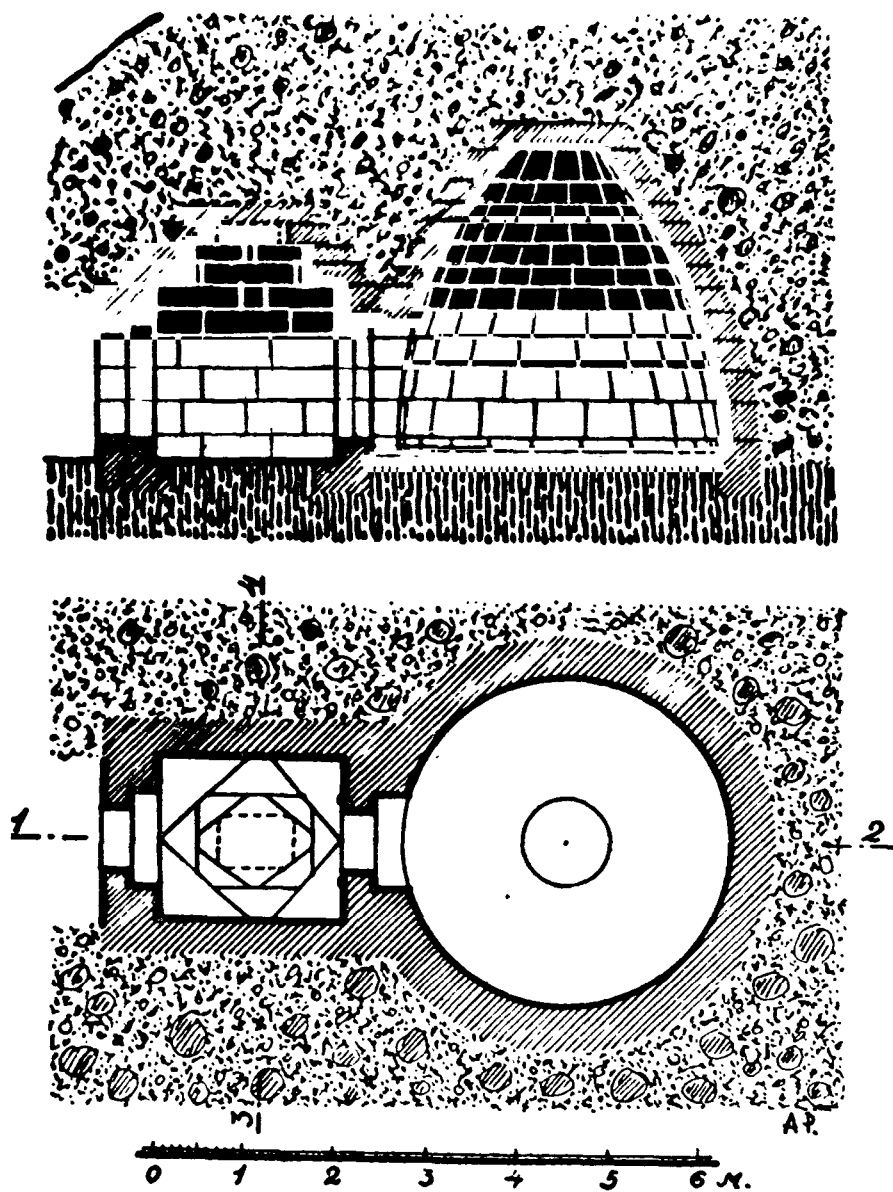


FIG. 16. SECTION OF TOMB, KURT-KALE, NEAR MEZEK (see p. 303)



# The Mexican Indian Flying Game

by RODNEY GALLOP

THE first historical account of the JUEGO DE LOS VOLADORES of the Mexican Indians is to be found in Fr. Juan de Torquemada's *De la Monarquía Indiana*. The relevant passage, which internal evidence shows to have been written in 1612, is to be found in book 10 chapter 38. Preserving the complexities and angularities of the style it may be translated as follows :—

Among other forms of diversion, which these Western Indians had and with which they increased the solemnity of their festivals and gave pleasure to those present, was a manner of flying which they had, describing circles through the air, fastened by cords which hung from a stout, tall mast; and for the greater solace of the reader I will describe in words how it was done.

When they were to fly they brought from the mountains a very tall, thick tree, and removed its bark, leaving it smooth. It was very straight and of sufficient height to allow those who flew to describe thirteen circles round it. The artifice of this invention is a mortar which they fixed on the top of the pole, from which hung a wooden square like a frame about twelve feet across, firmly fastened to the mortar by four cords from the four angles of the square or frame. Between the mortar and the aforesaid square they tied four more ropes long enough to support those who hung from them, who at times were three or four or more from each. They made these ropes fast with strong nails so that they should not come away or slip round, bringing dissonance into the rhythm or rate of speed with which they flew. These ropes were passed through holes which were in the middle of the joists forming the square, which, that they might perform their service, they wound round the pole, with much care and harmony, taking them all together so that one should overlap the other, just as the warp is set up in a loom before weaving. These ropes ended at their lowest extremity in loops about a yard wide, and these came flush with the square when they wound them round the mast set up for the flight. In order to climb up to the aforesaid square, which was where the Indian flyers

## THE MEXICAN INDIAN FLYING GAME

sat, they fastened a rope from the bottom to the top, making knots up the mast which served as steps and handholds so that they could climb up it with great ease and dexterity.

The Indians who flew were only those who were very skilled, and who practised many days before in order to reach dexterity and grace. The principal performers of the game were four who clothed themselves as various birds, that is to say some assuming the form of eagles, others of griffons and birds representing greatness and nobility. They had their wings spread to represent the true and natural flight of the bird ; they climbed to the top very lightly and agilely and with them eight or ten others richly and luxuriously clad with numerous bracelets and features, to add to the sound and show of their flight. All sat down in order on the square and in turn each climbed on his feet on to the mortar, and there they danced to the music of some instrument the changes that they knew, giving many turns like rope-dancers, each trying to outdo the other.

After having delighted the bystanders, who as though bereft of their wits were watching the things that were done, the four who represented the aforesaid birds fastened themselves round the waist, and let themselves hang from the ropes with which they feigned their flight, and with the weight of their bodies they moved the square round and made circles themselves, and the lower they came the more the circles made widened ; so that the second overtook the first bird and rope, and the third the second, and in this way the last came to finish like a bell in a very broad and round space, all competing with one another in speed and force, and thus reached the ground with great impetus and violence.

It was a sight to see what those flyers did, some holding the ropes with their feet, others with their hands, others made fast only by the rope round their waists. Those who remained at the top, when they saw that the flyers had accomplished half the course of their flight, seized the ropes and came sliding down them, one after another, making many sounds and playing clever tricks ; so that when the flyers reached the ground they arrived together with them. Then was the laughter and the contentment of all ; for if he who flew was not very skilful, as he descended with force and impetus, he landed on his hands or head instead of on his feet and was carried round on the ground until the rope lost the momentum which it had ; and in this way was the flight brought to an end, and they picked up the ropes in order to do the same again.

## ANTIQUITY

I think that this invention was imagined by the Devil, to keep his false servants and devotees in fresher and more continuous memory of his infernal and abominable service ; for it was a reminder of the fifty-two years which they counted to their century (as we have already stated) at the end of which cycle of years they renewed, with the new fire which they took out, their pact and agreement which they had made with the Devil to serve him as many years again in the course of time to come. This is shown in the thirteen circles which they described : for although they do not exceed thirteen, taking into consideration the four ropes they made fifty-two, since each of the four flew thirteen circles.

This flight did not cease at the time of the Conquest and Implantation of the Faith in these Indies ; rather it continued until the monks, ministers of God, discovered the secret and prohibited most rigorously that it should be done. But after the death of the first idolaters who had received the faith, and the sons who followed them having forgotten the idolatry which it signified, they have returned to the flight and executed it on many occasions ; and like people who profit merely by the game and not by the intention which their forefathers had, they no longer care whether the *volador* frames are four-sided, and thus they make them six-sided, especially those that are very high, and hang from them six ropes and perform on them with great festivity and enjoyment, not caring whether the circles are only thirteen ; for according as the poles from which they fly are great or small, so are many or few the circles which they describe round them.

Of these I succeeded in seeing in the Plazuela de Palacio (which for a long time was called the Square of the Volador and is now called that of the Schools) one of excessive height, and in the time of the Viceroy Don Martín Enriquez in certain feasts which the Mexicans made of the Conquest of Mexico, renewing the memory of Hernán Cortés and all that had happened up to the taking of the city they flew several times, and at the end of the day and of the feasts, an Indian, who that day had distinguished himself by very special things which he had done, climbed on his feet on to the mortar, and when it appeared to him time to come after those who were flying, he threw himself down to catch one of the ropes of the flyers as he had done at other times ; but, either because he had in his hands a drum and some gourd-rattles, or because his head was heavy, as it was presumed, with the wine which he had taken, he did not succeed in catching it ; and although he bore wings they were like those of Icarus affixed with wax, and thus they were of

## THE MEXICAN INDIAN FLYING GAME

no avail and he came to the ground before his companions and was dashed into a thousand pieces ; but not on account of this did they remove it (*i.e.* the pole), rather did they fly from it many other times until the aforesaid pole rotted in the part which was fixed in the ground.

Many others have been killed on others (*i.e.* poles) because they go up heavy-headed, and for this reason I was in agreement in this aforesaid city of Mexico with the Lord Viceroys that they should be prohibited ; but as alike in good and in evil things have no permanence, and as the other sage said : there are as many opinions as there are heads in the world. I have been told that they have resuscitated the game ; and in a festival which was held for Santiago in the part of Tlatelulco this past year of 1611 which is the second which has been held since the church was finished, an Indian fell from the top and died from the fall ; and in this style and manner others have died and other disasters and misfortunes taken place, and this is not enough for a warning, any more than it is to put an end to the bullfight seeing that every time they are fought men are killed and wounded in the ring ; for they must repeat the common adage that not because a ship is lost at sea do others give up navigation.

Long and prolix as it is, this extract is invaluable as being the only detailed description of the Juego de los Voladores in four centuries of Mexican history. The ceremonial is illustrated in both the Porfirio Diaz and Fernandez Leal (PLATE I) codices, which are supposed to antedate the Conquest. Bernal Diaz leaves a mention which is tantalizing in its brevity,<sup>1</sup> and Sahagún to whom we should look for both description and illustration does not allude to it. Torquemada's account dates from a time when the details had already undergone modification, and Clavijero, who furnishes the next reference some 150 years later, is content to summarize it and, with a rather fanciful illustration (PLATE II), to suggest that he lacks first-hand knowledge of the rite.<sup>2</sup> Only on two points does he supplement Torquemada, when he mentions that the man who danced on top of the pole waved a flag if he did not play a pipe and tabor, and that those who slid down the ropes sometimes sprang from one rope to another. The briefest

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<sup>1</sup> Bernal Diaz del Castillo, *The Discovery and Conquest of Mexico*. Translated by A. P. Maudslay, p. 296. 'Let us go on and tell about the great number of dancers kept by the Great Montezuma for his amusement . . . and others who flew when they danced up in the air . . . '.

<sup>2</sup> Francisco Javier Clavijero, *Historia Antigua de México*, 1780, p. 236.

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mention by Madame Calderón de la Barca<sup>3</sup> who in 1839 saw the Juego de los Voladores or something resembling it at Rio Frico on her way from Vera Cruz to Mexico City completes the historical bibliography of the subject.

The Juego de los Voladores still survives today in a region roughly corresponding to the Sierra de Puebla and the low country between it and the Gulf of Mexico. I have been fortunate enough to see it on three separate occasions, representing two distinct traditions.

It is at Papantla, a remote and inaccessible *pueblo* in the *tierra caliente* of Vera Cruz that the performance conforms most closely to the original. This is as it should be, for Papantla is in the heart of the Totonac Indian country, and there is reason to believe that the Volador was originally a Totonac rite, only later adopted by Otomi and Nahuaspeaking tribes.<sup>4</sup> Its modern Totonac name of *lakas* signifies 'macaws', but it seems more likely that the bird originally represented was the *quetzalcoxcotli* or Crested Quetzal (*Gallinae Penolepe Purpurascens*), sacred to Xochipilli, god of dawn, which is frequently represented in ancient Totonac sculpture and still frequents the Sierra. The performers, who, on Corpus Christi day in 1936, were ten in number, have lost all their bird-costume with the exception of a little fan-shaped crest on their tall, pointed headdress and of embroidered bandana handkerchiefs fastened bandoleerwise round their shoulders, which may be a faint memory of wings. For the rest, the costume consisted of white shirts and scarlet knee-breeches with another bandana handkerchief fastened round the waist. The leader carried a pipe and tabor, the former, held in his left hand, being the three-holed instrument familiar in Europe, and the latter a small child's drum fastened to his left wrist. Nine of the *tocotines*,<sup>5</sup> as they are called, were similarly dressed, but the tenth was a grotesque figure in ordinary clothes with

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<sup>3</sup> Madame Calderón de la Barca, *Life in Mexico*. (Everyman Edition, p. 47). 'In front of the house some Indians were playing at a curious and very ancient game, a sort of swing, resembling "El Juego de los Voladores"—"The game of the flyers", much in vogue amongst the ancient Mexicans'.

<sup>4</sup> Cf. Dr. Walter Krickeberg, *Los Totonaca*. Mexico, 1933, p. 73.

<sup>5</sup> I suspect the application of this name (which is said to be derived from the two alternating notes sounded by the ancient *teponaxtli* drum) to the flyers of being relatively recent. Clavijero (*op. cit.*, p. 236) talks of 'an ancient dance, popularly called *tocotines*, so beautiful, honest and grave, that it is done in Christian churches at their feasts'. I have seen this dance performed in the church of Santa Catarina in the northern part of the Sierra de Puebla, and it had nothing to do with the Volador.

## THE MEXICAN INDIAN FLYING GAME

a black wooden mask, a straw hat of 'gent's boater' type and a horse-headed stick on which he occasionally 'rode a cock horse'. He was evidently one of those Fools who, as described by Clavijero, accompanied the Indian dancers before ever European influence was exerted on them, 'imitating other races in their costume, or with disguises of wild beasts and other animals, and making the people laugh with their antics'.<sup>6</sup> This Fool, by a modern confusion of ideas, is called Pilatos (Pilate), a term doubtless borrowed from the imported Dance of the Moors and Christians in which the infidel army is captained by Pontius Pilate.

We had missed those of the preparations for the Juego de los Voladores which are completed some days in advance, but we were able to learn full details of them. Some days before the ceremony several hundred Indians go out into the jungle and choose a tall and straight tree of the type for which they have no other name than *palo volador*. This they fell, strip and, shouting and singing, haul with liana ropes into the *pueblo*. Here it is planted in a deep hole into which a variety of sacrificial objects are first thrown: hard-boiled eggs, sugar-cane brandy, *tamales* (a local food), pieces of cloth and a chicken. They dance before the pole and also whip it, hoping by this mixture of propitiation and intimidation to dissuade the pole from 'devouring men'.

When we arrived in Papantla on a clear, rain-washed June afternoon, the pole was already in position together with the gear as described by Torquemada, the mortar-like cap (called *Manzana*) being not more than a foot in diameter, and the frame, despite the early missionaries, four- and not six-sided (PLATE III).

When the *tocotines* entered the plaza they made for the church before the porch of which they danced, first in line and then in a circle to the piping and drumming of their leader. This concession to Christianity completed they repeated their dance before and around the pole. Next, five of them climbed the pole, including the leader and Pilate. The former gingerly seated himself on the *manzana* while the other four ensconced themselves on the four sides of the frame, facing inwards. The others remained at the foot of the pole, round which they danced at intervals in order to ward off fear and all evil influences. The leader then began to play his instruments, swaying from side to side and at times leaning over backwards so that his head nearly touched the frame. Then, rising to his feet and never ceasing

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<sup>6</sup> Clavijero, *op. cit.*, p. 235.

## ANTIQUITY

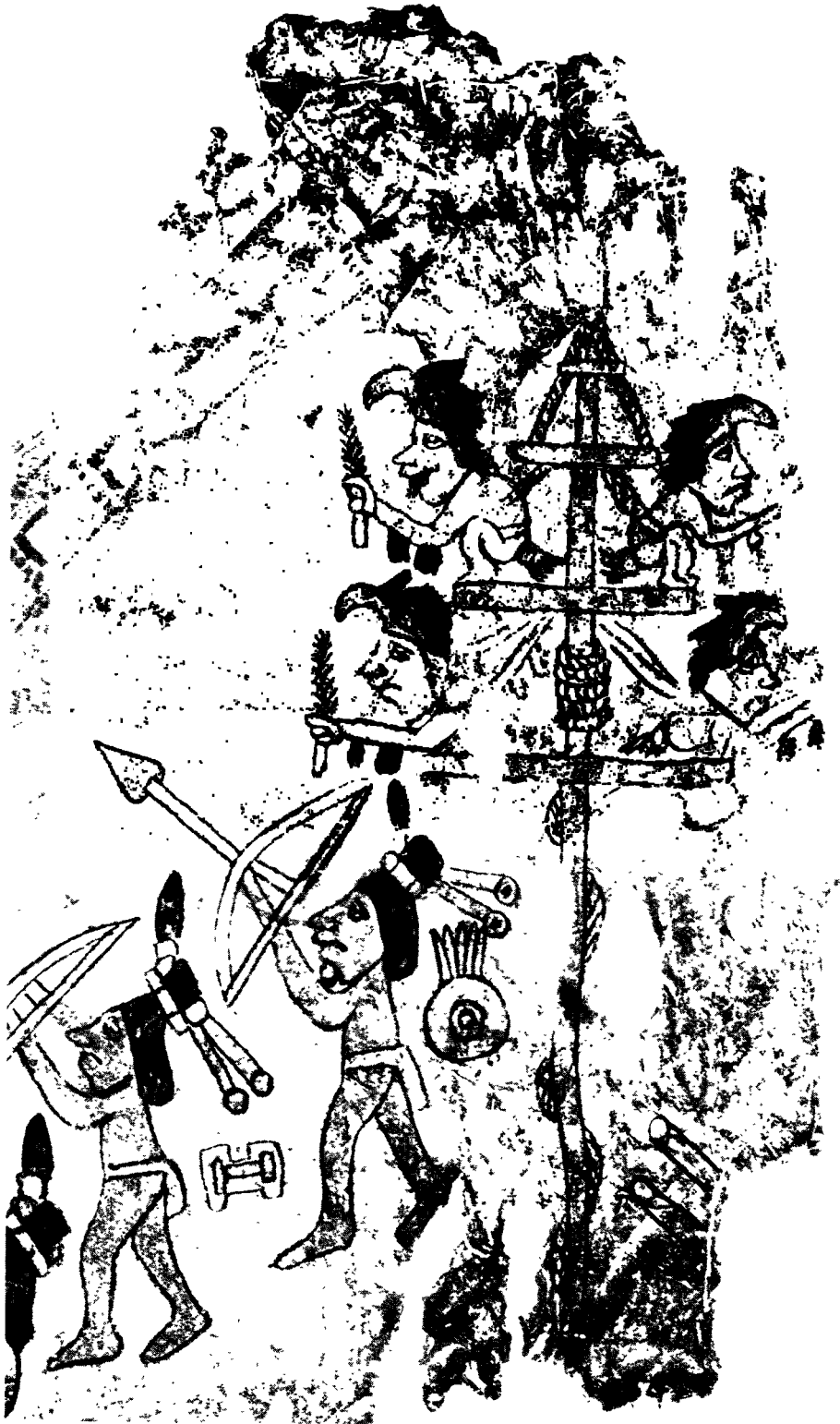
his music, he began to dance in the Indian fashion with little jumps and stamping steps, slowly rotating on his miniature platform.

The flight began when the flyers at a concerted gesture flung themselves backwards into space, their weight unwinding the ropes which had been wound round the top of the pole, spinning the cap and frame so that they were carried round in ever-widening circles to the ground. There were more than thirteen circles, and the leader remained playing on the *manzana*, repeating his back-breaking contortions as he was swung round.

Torquemada does not exaggerate the danger of the performance. Bystanders were scornful of this year's leader on the ground that in his dance he did not leap ten inches into the air. Yet they were ready to admit that one who did so two years before was dashed to the ground and killed. Some ten years ago the pole snapped and all five performers met their death. The leader, different each year, is chosen a year in advance, and during the intervening time is made much of and piled with food, drink and all he may desire, a custom which connects him unmistakably with certain sacrificial victims of pre-Cortesian Mexico, that sacrificed in the guise of Tezcatlipoca, for instance.

Further to the north, three or four days on horseback from Papantla I have twice seen the Juego de los Voladores performed in a slightly different manner by Otomi Indians of the hamlet of Huehuetlilla (State of Puebla). Their pole is taller and stouter, the cap (here called *tecomate*, Aztec for 'gourd') two feet across and the frame hexagonal. There are six flyers, each of whom takes it in turn to dance at the top of the pole, but none of whom remain there during the flight, the musician continuing his drumming and skirling as like the rest he is whirled round head downwards in ever-widening circles (PLATE IV).

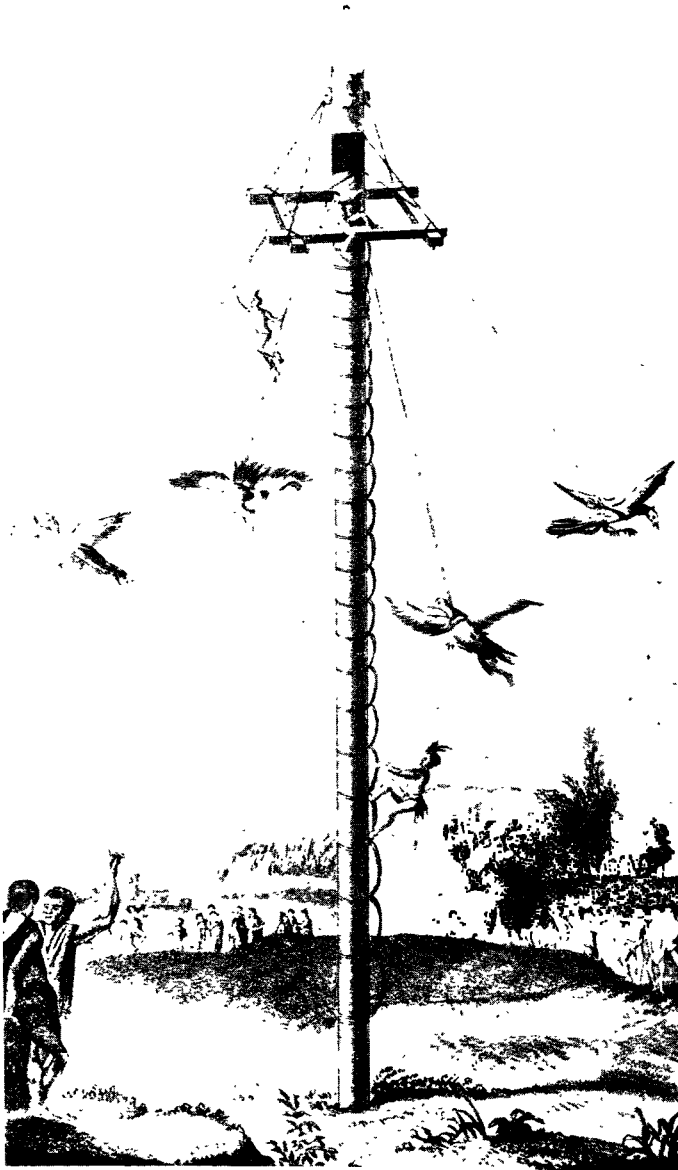
Here, too, there is an extraneous character not mentioned by Torquemada. This is a man dressed as a woman and known by the name of Malinche, the Aztec interpreter and mistress of Cortes. This figure may have been borrowed from the Aztec and Zapotec dance of the Conquest in which she appears with more obvious justification. She may none the less be the avatar of some earlier Man-Woman. There is nothing in the Malinche of history to explain the gourd bowl and bandana handkerchief which her representative holds in his hands. At Papantla, however, we saw on the same occasion as the Volador a Man-Woman called 'La Maringuilla', figuring in the so-called *Danza de los Negritos*. Like the Malinche of Huehuetlilla 'La Maringuilla' carries a gourd bowl and handkerchief, the purpose of which is here



THE FLYING GAME DEPICTED IN THE FERNANDEZ LEAL CODEX (see p. 309)  
Owing to Aztec ignorance of perspective the square frame and four flyers are shown vertically instead of horizontally.

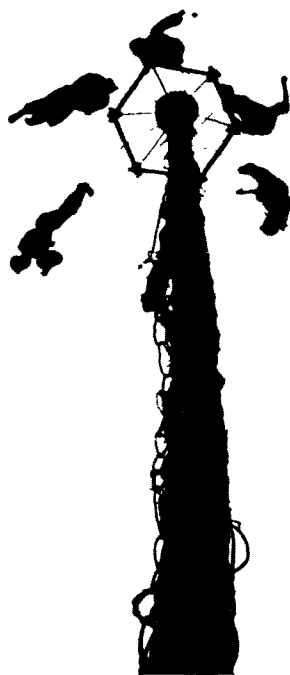


PLATE II



THE FLYING GAME.  
DEPICTED IN CLAVIJERO'S 'HISTORIA ANTIGUA DE MEXICO' (see p. 309)

PLATE III



THE BEGINNING OF THE DESCENT AT PAHUATELAN (see p. 310)

At the bottom left the musician is seen already playing his pipe and tabor, and above him is the skirted figure of Malinche.

PLATE IV



THE MUSICIAN AT PAHUATLAN WHIRLED THROUGH THE AIR NEAR THE END OF THE FLIGHT  
(see p. 312)

## THE MEXICAN INDIAN FLYING GAME

revealed, for in the bowl is a little articulated snake which the handkerchief covers until the end of the dance, when the snake is thrown on the ground and the Indians make a pretence of beating it to death. The snake, as is well known, is the symbol of lightning, rain and fertility throughout Central and South America, and the title of 'Snake-Woman' was applied at Montezuma's court to a high official of the male sex.

In regard to the interpretation of the Volador there is no reason to doubt Torquemada's explanation that the thirteen circles described by each of the four flyers were regarded as making up the fifty-two years of the *xiuhtonalli* cycle. Moreover, one of the Otomi flyers remarked to us that although they were six in number they should properly be four, for they represented 'the four birds who flew with the four winds to the four points of the compass', thus showing that each of the birds was associated with one of the four 'world directions' which played so important a part in Indian mythology, and to each of which thirteen of the years in each cycle were apportioned.

A more detailed attempt to explain the symbolism of the rite is made by Dr Walter Krickeberg, who bases his theory on the fact that in the four illustrations of the Volador ceremony in the two Codices already mentioned it is shown in close association with the arrow sacrifice (*tlacacaliztli*), in which the victim is fastened to the top of a ladder to undergo the traditional martyrdom of St. Sebastian. This ritual belonged to the cult of the earth and vegetation gods, more especially to that of Tlazolteotl, goddess of the earth and moon, and Xipe, god of vegetation. 'The bird disguise of the flyers' writes Dr Krickeberg, 'recalls the Mexican notion that the souls of warriors killed in battle and of sacrificial victims came down to earth at midday after terminating their service with the sun, and that they assumed the shape of birds and butterflies sucking the honey of flowers . . . Possibly they intended to represent with the Juego del Volador the descent of the sacrificial victim'.<sup>7</sup>

This is scarcely convincing, nor is it rendered more so by Dr Krickeberg's emphasis on two coincidences: the first that the pointed

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<sup>7</sup> Krickeberg, 74. This belief is far more closely symbolized in the Aztec dance, described by Durán, in which, while the young men danced round the statue of the goddess Xochiquetzalli beneath a bower of roses in the shade of flowering trees within the temple precincts, boys disguised as birds and butterflies climbed the trees and pretended to suck honey from the flowers, and other dancers disguised as gods made pretence to shoot them with blow-guns.

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headgear of the *tocotines* is (as he says) Huastecan, and the Huastecs were the first victims to be put to death by the arrow sacrifice ; and the second that in Aztec lore the souls of dead warriors and victims were thought to dwell on the eastern coast of Mexico, *i.e.* in the region where the Volador originated. Even less convincing is the attempt of Mr W. C. MacLeod, on no particular evidence, to relate the Volador to the North American hook-swinging ritual.<sup>8</sup>

In conclusion it should be stated that the Juego de los Voladores is also practised in Guatemala whither it appears to have been brought by a migration from the region of Quiotepec south of Cholula (State of Puebla) and therefore not far from the habitat of the Totonacs. Here it took place after the cocoa harvest, the idol of the cocoa-god being set at the top of the pole. There were only two flyers (as there are today in Guatemala), one carrying a bow and arrow and the other a fan and mirror, possibly representing a warrior and a merchant respectively. Sixty men with painted faces or bird-masks danced round the pole.<sup>9</sup>

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<sup>8</sup> W. C. MacLeod, 'Nature, Origin and linkages of the rite of hookswinging with special reference to North America', *Anthropos* (1934) xxix, 1, 2, p. 15.

<sup>9</sup> Krickeberg, *op. cit.*, p. 161.

# The Ruined Towns of Somaliland\*

by A. T. CURLE

PERIODICAL reference to the 'Mysterious Ruined Cities of Somaliland', citing them as an 'unsolved riddle of Africa', have appeared in books and articles from time to time.<sup>1</sup> The majority of these ruined towns lie in the west of British Somaliland, within the present administrative district of Borama, or across the frontier in the adjacent areas of Ethiopia, roughly half way between the ancient port of Zeila and the walled town of Harar.<sup>2</sup> The Somalis of today can throw no light on their history.

A series of investigations were carried out by Captain R. H. R. Taylor and myself during the week-ends available in 1934. The sites of ten ruined towns were already more or less vaguely known, while eleven new sites, off the beaten track and overgrown with bush, in both Ethiopia and British Somaliland, were one by one traced and visited as leave permitted. Circumstances did not permit of excavation beyond the clearing out of two houses and the sinking of a trial trench across a refuse heap, but notes were made and a careful record kept of all surface finds. The representative collection of relics brought home and presented to the Department of Ethnology of the British Museum amounted to several thousand items, mostly fragmentary. The numerous types of objects were classified and made it possible to assign the period of occupation of the towns to the 15th and 16th centuries.

The sites investigated can be divided into four groups (*see MAP*) which, although geographically distinct, are yet sufficiently homogeneous in character to enable them to be assigned to the same

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\* A debt of gratitude is due to Lieut.-Colonel E. H. M. Clifford, C.B.E., M.C., and the late Fitaurari Tessama Banti, Commissioners of the British Somaliland-Ethiopia Boundary Commission who afforded us every facility and rendered it possible to eliminate the question of frontiers as far as the investigations were concerned.

<sup>1</sup> See also 'An unsolved Riddle of Africa: mysterious ruins in Somaliland', by John Parkinson. *Illustrated London News*, 26 January, 1935.

<sup>2</sup> Azais et Chambard, *Cinq Années de Recherches Archéologiques en Ethiopie*, part 1, chap. 2.

## ANTIQUITY

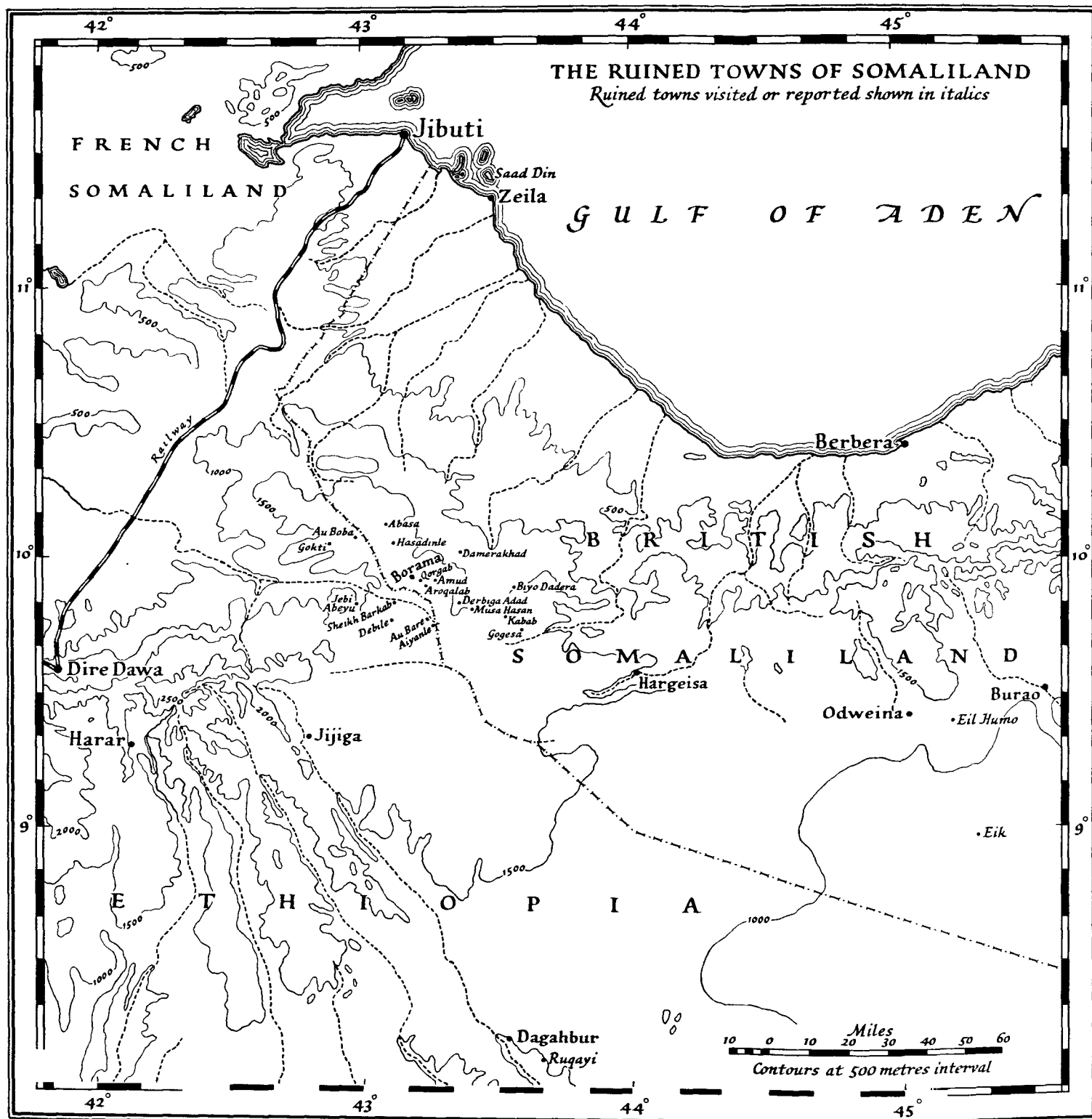
civilization. The first group consists of the coastal town of Zeila and the island of Saad-Din which lies about four miles to the north. The town of Zeila is, of course, still in existence today, although its houses are tumbling down and it has shrunk to a shadow of its former importance. Until eclipsed by the adjacent French town of Jibuti it was the chief centre of export for the products of Ethiopia. The Franco-Ethiopian railway now takes the place of the age-old caravan tracks. The District Officer's house to the east of the town, just outside the line of the old walls, has been built on the ancient refuse heaps, and it is possible to pick up around the house quantities of fragments of Celadon porcelain, and pieces of Arab pottery and glass. It is impossible to get any idea of the plan or construction of the old town as the site has been in continuous occupation for 2000 years.

The island of Saad-Din, now uninhabited and waterless, contains the ruins of many houses with court-yards, spaced far apart, their walls, however, usually not remaining for more than a foot above the ground. A cellar or tank with an arched roof is the only remaining building. All the refuse heaps and relics are found in the southwest corner of the island, and no heaps are visible on the surface near the ruins. Near the refuse-heaps, however, the line of a wall is traceable for several hundred yards.

In the second and largest group are found thirteen towns lying on both sides of the British Somaliland-Ethiopia boundary some hundred miles south of, and inland from, Zeila; namely Amud, Abasa, Au Boba, Au Bare, Derbiga Adad, Biyo Dadera, Damerakhad, Derbile, Gogesa, Qorgab, Hasadinle, Kabab, Musa Hasan, the sites of a religious settlement at Sheikh Barkab and of a single house or villa at Aroqolab.<sup>3</sup> They are situated some 5000 to 6000 feet above sea level. The four principal towns of this group appear to have been Abasa, Amud, Au Bare and Gogesa. Each of these is represented by the ruins of some 200 houses. The size of the remainder of the towns varies from upwards of 20 houses. The houses in the larger towns are still standing with walls in some cases as high as 20 feet. Buildings, which because of the presence of a 'mihrab' are unmistakably mosques, are usually in the best state of preservation. In the smaller towns such as Hasadinle the walls remain to a height of only one or two feet. All the cities are overgrown with bush, and shrubs grow out of the walls. The air-photograph (PLATE I) shows the site of the town of Amud. The

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<sup>3</sup> Place-names are spelt in accordance with the R.G.S., II system.







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## THE RUINED TOWNS OF SOMALILAND

refuse heaps stand out clearly as open mounds on the outskirts of the buildings ; a trial trench struck across the largest of these revealed a depth of 4 feet 6 inches of ashes, bones, and general refuse. These towns, although within easy reach of wells in the various river-beds, are always a little distance away, probably on account of mosquitoes.

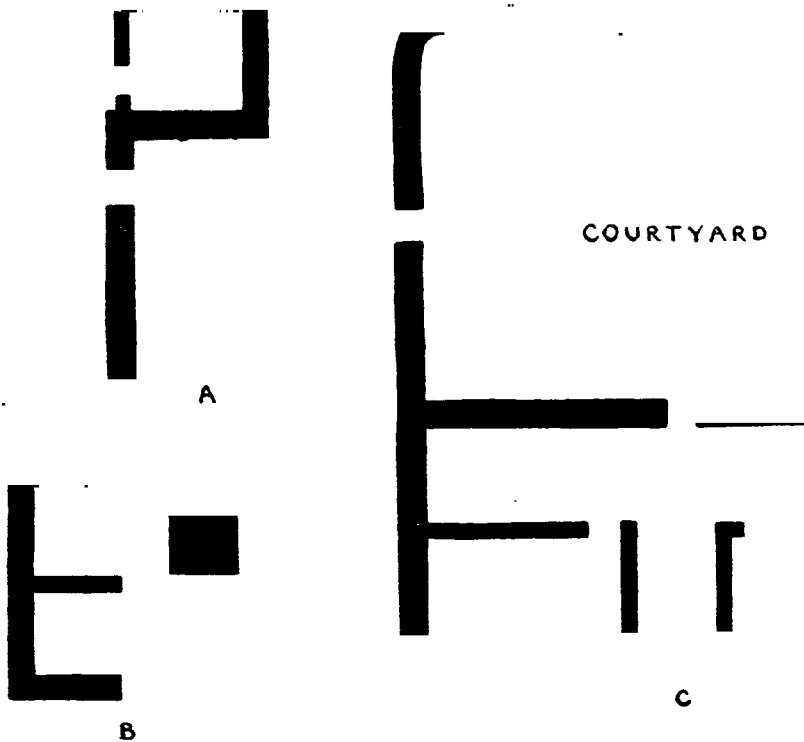


FIG. 1

A, HOUSE AT EIK. B, HOUSE AT AMUD. C, LARGE HOUSE WITH COURTYARD AT EIK

The country in the vicinity is generally hilly with thick bush in the valleys. Only a little agricultural activity could have been possible, but stock in the form of cattle, camels, sheep and goats thrive at the present day and therefore probably did so in the past. The climate by day is mild and pleasant, the altitude however rendering it unduly cold at nights from November to January, and forming an agreeable contrast to the hot dusty plain behind Zeila.

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The third group is a small one comprising only the towns of Eil Humo and Eik. They lie about a hundred and twenty miles inland, south of Berbera on the flat plateau 4000 feet above sea level. The houses appear to have been similar in construction to those of the former group. The water which must have supplied the town of Eik has dried up, and even boring to a depth of about 300 feet has failed to find any on several adjacent sites.

The fourth group is a settlement at Rugayi, near Dagahbur in Ethiopia, over 200 miles inland and south-southwest of Berbera. It consists of an ambitiously planned mosque with the site of a nomadic settlement under the shadow of the walls on the west side. It lies well away from the other ruined towns and was probably a religious settlement; but the pieces of Celadon ware, steatite plates, and other relics found justify its inclusion along with them.

The plans of the houses noted on all the sites indicate that their dimensions were governed by the difficulty of obtaining local supplies of roofing timber exceeding nine feet in length, a difficulty still encountered today. Some of the plans adopted for houses of more than one room are shown on FIG. 1. The average house was well-built, and, in spite of its somewhat dark interior, must have been cool during the day, and warm at night. The houses varied in size from a single room measuring on plan 9 feet by 10 feet, to a four-roomed mansion with a courtyard (FIG. 1, c). The walls were usually about 2 feet to 3 feet thick, and were well built of roughly dressed stones laid in alternate courses of large and small material bonded with termite earth (PLATE II). The partition-walls were not tied into the main walls. It was difficult to gauge the original height of the rooms, but in some cases that would appear to have been about 10 feet. There were no windows in the modern sense of the word, and lighting and ventilation, other than from the door, must have come in through small rectangular holes, about one foot in height, set in the walls about 8 feet from the ground. The floor was of beaten earth in all the houses that were investigated. The roof was probably formed of brushwood, laid over a framework of rafters of local wood, and covered with earth; this theory is supported by a study of the earth in the houses we were able to clear out. Square or triangular-headed niches (PLATE II) were found in some of the walls and must have served as cupboards. There were no signs of doors having been fixed and it is probable that a cloth or skin, attached to pieces of timber laid horizontally, serving as a lintel, covered the aperture.

## THE RUINED TOWNS OF SOMALILAND

On the majority of sites the mosques were the most ambitiously planned buildings and alone appear to have been constructed with lime mortar. The 'Mihrab' of the mosque at Amud has a pointed arch and outside the mosque proper was an antechamber containing a storage well 8 feet deep and lined with plaster to hold the water for ablutions. The mosque at Abasa measured some 60 feet by 54 feet and contained twelve unevenly placed pillars of varying forms; some were round and surmounted by built rectangular capitals, others rectangular with the angles recessed, cruciform in plan, as shown in PLATE III. No arches appear to have sprung from these pillars, which must accordingly have supported a brushwood roof. Some of the pillars had baulks of wood built into them about three feet from the ground which can be seen in the tall pillar in the centre of PLATE III. Their purpose was probably to facilitate the attachment of drapery or hangings. The 'Mihrab' of this mosque was formed of a series of four recessed rounded arches but unfortunately the back wall has fallen away. The mosque at Rugayi is perhaps the most elaborate building of all and is more carefully constructed than any of the others. It consisted of a rectangular building with an inner court, the wall of which is pierced on each face by two arches, the ambulatory having been roofed over with sun-dried tiles while the court was probably left open. On both occasions I went there it was unfortunately impossible to take any measurements. Between 1930 and 1934 two of the arches collapsed and the remainder are probably in a perilous state by now, unless the Italians have restored them.

In none of the towns did there appear to be any town-planning or orderly arrangement of the houses. The sites of the inland towns were not chosen for defence, nor were they surrounded by protecting walls. The only uniformity of plan is shown in the positions of the refuse-heaps and graveyards, which are always on the edge of the towns.

The cemeteries contain no inscriptions and no elaborate tombs, except at Au Boba, where a conical shaped tomb has been erected over what is reputed to be the grave of the name sheik of the town<sup>4</sup> (PLATE IV). The usual type of grave is oriented east and west, thus probably allowing the body to lie on the right side with the face turned towards Mecca. The graves are outlined with stones set on edge and occasionally there is a low uninscribed headstone.

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<sup>4</sup> A son of a Sheik Boba is mentioned as being one of the Mohammedan commanders with Somalis under him in 1529. Ahmad ibn Abd Al-Kadir, *Histoire de la Conquête de l'Abyssinie*, XVI siècle, p. 118. (Publications de l'École supérieure des lettres d'Algers).

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A large quantity of objects of porcelain, pottery, glass, metalwork and stone were recovered from the surface of refuse-heaps and amongst the ruins of eighteen towns, approximately similar types being found in all four groups of sites.<sup>5</sup>

Fragments of Celadon vessels were found on every site, and pieces large enough to date have been assigned to the Sung and Ming dynasties in the region of the 12th to 15th centuries. Fragments of blue and white porcelain came to light on every site ; these while difficult to date are generally attributed to the 16th and 17th centuries. One fragment of thin ware, blue outside, from Abasa, has been identified as Ming of the 16th century. The base of a grey glazed pottery vessel from Zeila with a floral design has been attributed to the 17th century.

One piece of a small bowl from Aroqolab with a fine green internal glaze is believed to be Egyptian of the 15th century or earlier.

Quantities of fragments of various types of brown, blue, grey and white, and mottled coloured glazed pottery came from all the sites and it is impossible to assign them to any period more definitely than from the 13th to the 18th century. A group of rather larger fragments from Saad-Din island are put down as suggestive of the 15th century. One piece of delicate cream-coloured ware, also from Saad-Din island, has been classified as probably 12th century. Numerous pieces of grey-biscuit porous vessels were recovered, some bearing interesting patterns resembling Coptic interlacing work. It is naturally impossible to assign a period to these as such vessels are in use down to the present day in the Near East, the majority coming from Spain and India, but their use is confined to the Asiatic and European population.

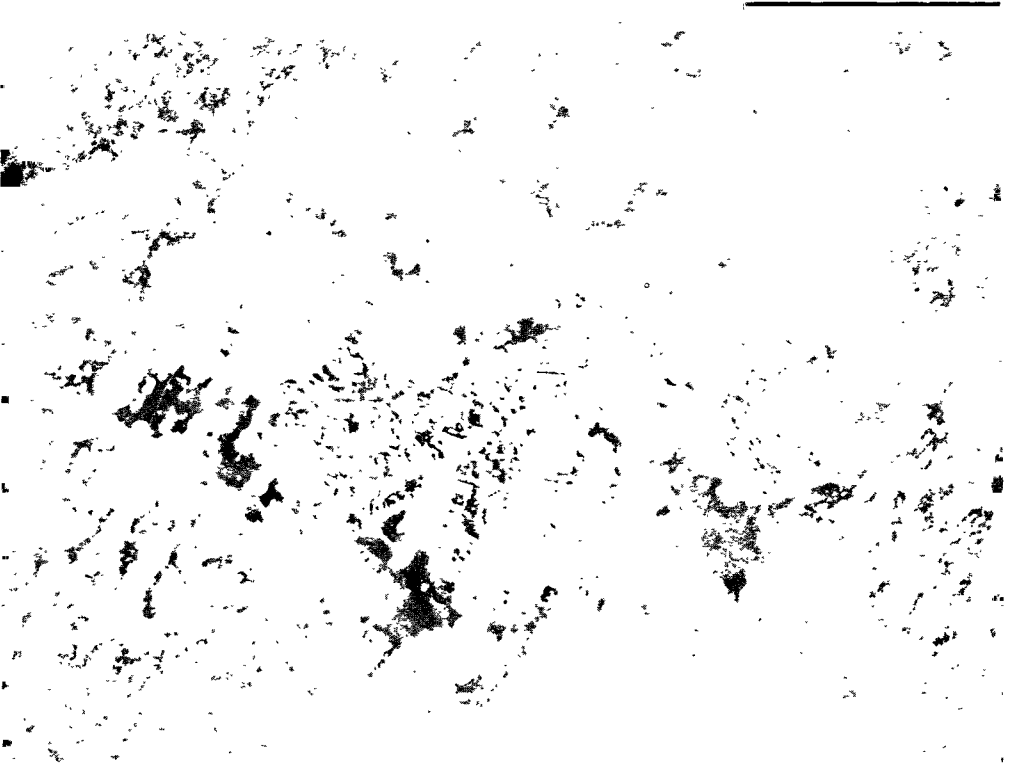
All the sites yielded a quantity of coarse hand-made pottery sometimes on the refuse-heaps associated with the Chinese and other wares. Pieces of a variety of types of vessels were found, superior in design and construction to those in use by the natives of Somaliland today ; they included a plate-like type with small handles, pottery, water-bottles, etc. The only complete item was a flat pottery lid measuring 6 inches across and  $\frac{3}{4}$  inch thick with a small raised semicircular handle in the centre. Some of the coarse pottery from Abasa and Saad-Din island had the appearance of having been wheelmade, a technique no longer in use in Somaliland.

A small roughly-made pottery lamp came to light during the digging out of a house at Qorgab. It is primitive in design, being oval-shaped

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<sup>5</sup> I am indebted to Mrs E. P. S. Shirley for her help in the collection of objects from Zeila and Saad-Din island.

## PLATE I



THE RUINED TOWN OF AMUD (see p. 310)

The refuse-heaps are shown by the bare patches in the immediate vicinity of the town  
ph. Royal Air Force Official-Crown Copyright reserved.

PLATE II



TRIANGULAR HEADED NICHES IN THE WALL OF A HOUSE AT AMUD (see p. 318)

*ph.* Captain R. H. R. Taylor



PLATE III



THE MOSQUE AT ABASA LOOKING TOWARDS THE 'MIHRAB' (see p. 39). A RECTANGULAR PILLAR WITH RECESSED ANGLES ON THE RIGHT

ph. Captain R. H. R. Taylor

PLATE IV



THE TOMB OF SHLIKH AU' BOBA (see p. 319)

## THE RUINED TOWNS OF SOMALILAND

with a flat base and a spout protruding upwards from one end to take the wick. Traces of soot were found in the spout.

Pieces of burnished pottery were found on most of the inland sites. The fragments were brownish or black in colour and in some cases showed simple incised ornamentation. One piece, the ribbed neck of a black jar, was found 4 feet 6 inches below the surface in the refuse-heap at Amud. It is similar in type to a jar I saw used for storing honey in Harar in 1935. No burnished pottery is in use in Somaliland today, but it is in general use in Ethiopia.

All the sites produced a number of fragments of glass vessels; they were thin and of various colours including blue, yellow, and green. It is impossible to date the fragments beyond two pieces, one with a blue line across it and the other with white lines and raised dots about the size of a pin head, which are attributed to a period not later than the 15th century.

One small glass bottle blackened by contact with fire, but whole except for the mouth, was picked up at Zeila associated with Celadon ware.

A number of beads came from the various inland sites and were specially prolific at Sheikh Barkab mosque, where they appear to have been left as offerings. The following types were identified<sup>6</sup>:—Varieties of glass trade beads at the latest 100 years old, others earlier; cobalt blue glass rings similar to Bechuana and Mashona beads; 'cane' beads of drawn glass in white, green, pink, blue, and yellow from seven sites, the yellow similar to a type from Malay and early in date; one glass segmented bead; some round rock crystal beads typical of African make; two rock crystal ones with a hexagonal barrel; cornelian beads more akin to those from Romano-Egyptian sites than African. One agate bead was found. Some small flat ostrich-eggshell and marine shell pierced disks were recovered whose technique gave the impression that they might have come from the sites of an earlier civilization altogether.

All the sites yielded fragments of glass bangles. Unfortunately it is impossible to date them. They vary from simple black or blue drawn glass, plain or simply ornamented, to elaborate and highly coloured varieties made in three pieces. Samples of twisted glass bangles in variegated colours were included in the fragments.

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<sup>6</sup> I am indebted to Mr H. Beck, F.S.A. who very kindly examined the whole collection of beads and identified them.

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Portions of steatite platters were found on all the inland sites. They were about an inch thick, with a narrow, shallow raised rim. When complete they must have measured about a foot in diameter and in most cases they showed signs of considerable wear. Pieces of the base and rims of steatite bowl-shaped vessels also came to light ; they varied from  $\frac{1}{2}$  inch to an inch in thickness. One fragment of the rim of a vessel was decorated with small holes incised within circles.

Stone finds included 43 objects of steatite and other soft stone, probably spindle-whorls or in some cases beads. They vary in size and shape, some being conical, others flat, but all pierced with a hole in the centre ; their diameter varies from  $\frac{1}{2}$  inch to  $1\frac{1}{4}$  inches. Three pottery whorls were also discovered.

Seven round stones of limestone and quartz were revealed together on the floor of a house which was cleared out at Qorgab ; they varied in weight from 6 to 28 ozs. and bore marks indicating their use as hammer-stones. They were lying in close proximity to a steatite platter. A similar collection of four pebbles was discovered on the floor of a house at Abasa.

Six coins were recovered and it has been possible to identify two of them from Derbi Adad as belonging to Kait Bey, Sultan of Egypt,<sup>7</sup> 1467-1495. The other four are undecipherable. Two gold coins were found by a Somali woman herding goats amidst the ruins of Eik in 1935 ; they were purchased by a European official for a rupee and sold to Messrs Spink in London for £2 10s. on their gold value. Fortunately I was able to get impressions and they have been identified as having been minted in Egypt in the reign of Selim II, 1566-1574.<sup>8</sup> Coins are often reported to be found at Eik following on rain and there is little doubt that pieces from hoards come to light from time to time.

One silver finger-ring was found at Au Bare ; it measured about  $\frac{1}{4}$  inch wide and was ornamented with a debased pattern of interlacing. Five other pieces of metal rings of various types came to light.

A single barbed iron arrowhead  $2\frac{3}{4}$  inches in length was picked up at Abasa.

A bar, probably copper, 3 inches long and  $\frac{1}{4}$  inch thick, rounded at one end, came from Qorgab.

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<sup>7</sup> Kait Bey was one of the Mameluke Sultans of Egypt. His reign was a continual struggle with the Ottoman invaders with whom he eventually compromised.

<sup>8</sup> Selim II, an Ottoman Sultan who led an expedition against the Yemen.

## THE RUINED TOWNS OF SOMALILAND

A quantity of black obsidian flakes and small cores were common on the surface of some inland sites, especially at Derbiga Adad.<sup>9</sup>

Ostrich eggshell appeared on all the sites.

Two fragments of mother-of-pearl shell came to light; one, clearly the portion of some ornament, had a design of incised rings.

A piece of wood 3 inches long, with the appearance of having been turned, was found at Amud and might have been half the handle of a knife.

A disk of pottery, round in shape and  $\frac{3}{4}$  inch in diameter and over  $\frac{1}{2}$  inch thick, glazed on both sides, came from Amud and has the appearance of being a playing piece. A steatite disk of about the same dimensions, and some slightly larger, were found on other sites.

The general weight of datable evidence indicates that these inland towns flourished between the 15th and 16th centuries. It is impossible to say without excavation whether there were only one or several occupations during that period. The finds at Saad-Din island tend to be earlier than those from the inland sites and point to a date as early as the 12th century.

The size and number of the towns, the comparatively elaborate mosques, and the lack of defensive precautions show the existence of prosperous and peaceful Mohammedan communities.

The Celadon porcelain, Egyptian glazed pottery, thin glass fragments, porous water-vessels, mother-of-pearl ornaments and coins from Egypt, all indicate that their users must have been a comparatively cultured people carrying on a trade which had connexions with the outside world from Egypt on the one hand to China on the other. The interlacing pattern on the silver ring and the design of incised circles on the mother-of-pearl ornaments indicate a connexion with Coptic art. The steatite platters and vessels and obsidian chips found show that primitive utensils must have been used in conjunction with the modern. Travellers' accounts tell of slaves, gold, ivory and musk which was

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<sup>9</sup> Captain Taylor observed similar types of obsidian flakes at Aghresalam in the Sidamo province of southern Ethiopia in 1936. Reference to his interpreter revealed the fact that lumps of obsidian were brought by caravans and sold in the market to be split up for scraping and cutting purposes. [I have read somewhere that freshly-struck flakes of flint (or obsidian?) were used by barbers as razors for shaving. The statement was made in a book of travels. Unfortunately I did not make a note of it, and cannot now remember the source. Perhaps some reader may be able to trace it? If the practice still survives anywhere it would be worth while recording in this journal. O.G.S.C.].

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exported from Zeila, and there can be no doubt that the finds give a clue to what was received in return.

The numbers of spinning weights or whorls indicate a considerable spinning of wool or cotton, presumably for clothes. The cotton or wool was probably brought from Ethiopia where the same process of spinning is carried on today. Coffee beans found in the refuse-heaps, and the grind-stones from other regions go to indicate further that a comfortable standard of living was attained. The bones found in the refuse-heaps show that camel and sheep or goats formed items of diet ; the numerous cooking pots would be used for stewing while the hammer-stones would serve to break up the bones for marrow. One can picture the food being poured from the coarse cooking-pot on to the Celadon bowl and served to the family sitting round dipping their fingers into the bowl. The saddle-querns and grind-stones show that cereals were used and the product was no doubt made into some sort of bread. The finding of coffee beans indicates that coffee was taken either as a beverage or fried in fat in the berry. If taken as a beverage one can picture it being served in Chinese, Arab or Egyptian cups. Cool drinking water would be available from porous jars hanging from the roof. The flat steatite platters would serve the cook as a board on which to prepare the bread or meat and although no knives were found the cuts on the steatite platters point to their use.

The history of Ethiopia throws light on the events which occurred during the 15th and 16th centuries in the area in which these towns are situated. Although none of the inland sites investigated can be identified for certain with any one mentioned in the histories or chronicles, it seems probable that they formed part of the seven Mohammedan provinces which existed in the 14th century in the east and south of Ethiopia, and two of these, namely Hadya and Adal,<sup>10</sup> can be recognized as the ancient counterpart of Harar and Zeila. As most of the ruined towns lie between Zeila and Harar it is impossible to say to which of these provinces they belonged but one can clearly associate them with the trade of Zeila, which served as their port.

The relationship between the port of Zeila and its adjacent island of Saad-Din is not clear ; probably the island served as an overflow and auxiliary trading base for the merchants and would certainly offer security from land attack.

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<sup>10</sup> *Histoire des Guerres d'Amda Syon, roi d'Ethiopie*, translated by Jules Perruchon, p. 5.

## THE RUINED TOWNS OF SOMALILAND

There are many references in early chronicles to the penetration of the Moors or Mohammedans, and one account describes these immigrants as a people pre-eminently commercial who had at an early date settled along the coasts of the Mediterranean and Indian Ocean and established centres of commerce for the transport of merchandise from and to India. The kings of Abyssinia to whom their presence was necessary for the exchange of merchandise, gave them land on which they lived peacefully and occupied themselves with their own affairs ; from being tributaries they became in time masters of the provinces they occupied and refused to pay the taxes due unless the army came and took it by force.<sup>11</sup>

In 1402 Zeila was besieged and taken by the Ethiopians ; the defender Saad-Din was killed. He is buried in the southeast corner of the island which bears his name. The Ethiopian occupation was not of long duration and the 15th century saw the start of a series of constant raids and wars between the Mohammedan provinces, with Zeila and Harar on the one side and the Christian Ethiopians on the other. It must have been during the intervals between these wars that the inland towns flourished.

In 1503 the traveller Bartema visited ' Zeila in Ethiopia ' and comments on the great extent of its commerce and the marvellous abundance of gold, iron, and the innumerable black slaves sold for small prices. They were carried into Persia, Arabia Felix, Babylonia of Nilus, or Alcair or Mecca.<sup>12</sup>

Another account mentions that the king of Ethiopia, Lebna Dengel (1508-1540) early in his reign sent some merchants into the country of the Mohammedans with the gold, ivory, musk, slaves and much wealth which belonged to him. They sold the merchandise in Mohammedan territory and then crossed to Aden.<sup>13</sup>

In 1516 Zeila was burnt by the Portuguese fleet under Lopez Suarez Alberguiera and the following year the Turks, who under Selim I had overrun Arabia, seized Zeila, established a customs house and fitted out a fleet of small cutters to attack merchant vessels.<sup>14</sup>

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<sup>11</sup> Marius Saineano, *L'Abyssinie dans la seconde moitié du XVI siècle ou le règne de Sarsta-Dengel (Malak-Sagad)* [1563-1594], p. 25. Leipzig, 1892.

<sup>12</sup> John Winter Jones, *The Travels of Ludovico di Varthema*, p. 86. Hakluyt Society, 1873.

<sup>13</sup> Ahmad ibn Abd Al-Kadir. *Histoire de la Conquête de l'Abyssinie*, p. 70. (Publications de l'École supérieure des lettres d'Algers).

<sup>14</sup> E. A. Wallis Budge, *History of Ethiopia*, p. 330.

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The Turks being Mohammedans reached a 'modus vivendi' with their co-religionists, the people of Adal.

In 1527 Lebna Dengel, king of Ethiopia, invaded the country of Adal, burnt the towns and laid waste the king's castle in Zankar.<sup>15</sup> The Mohammedan invasion of Ethiopia followed and by 1540 the greater part of the country was in their hands, but by 1544 they had been driven out and their leader Mohammed Gran killed by the Ethiopians under the Emperor Claudius who attacked the country round Harar and destroyed the towns. The Mohammedans rose again and were finally defeated in 1575 and, as one account states, all danger to the eastern frontiers of Abyssinia was over, both from the Gallas and the Moors.<sup>16</sup> 'The kingdom fell partly into the hands of the Gallas, partly into the power of the Turkish janissaries who guarded the coast. Of all this powerful kingdom, which had been the terror of Abyssinia, only the capital Aoussa remained. Not long after its name too was forgotten'.

It can be conjectured that the towns of Adal burnt by Lebna Dengel in 1527 comprised certainly some of these ruined ones of Somaliland. Others may have met with a similar fate at the hands of Claudius in 1544. No other group of towns is known to exist near Zeila and with the weight of evidence of the finds it is safe to associate the principal group as forming part of the kingdom of Adal.

There is no direct evidence, however, either to prove or disprove the fact that this main group may have been again occupied at a later date. In the case of the ruins of Eik, in the light of the coin found there and assigned to Selim II (1566-74), it seems probable that it survived the destructions of 1527 and 1544 and perhaps finally passed out of occupation on the fall of the Mohammedan kingdoms in 1575. It is unlikely that the Eik and Eil Humo were included in the kingdoms of Adal or Hadya; being in more direct communication geographically with Berbera they probably formed part of one of the five other Mohammedan provinces.

Ethiopian accounts give certain indications regarding the inhabitants of the Mohammedan provinces. It is clear that most of the merchants or traders were immigrant 'Moors' or Arabs. Nevertheless from 1529 onwards there are frequent references to the Somalis who took an active part in the various Mohammedan wars and incursions

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<sup>15</sup> Not identified.

<sup>16</sup> Marius Saineano, *op. cit.* p. 28. Leipzig 1892.



## THE RUINED TOWNS OF SOMALILAND

into Ethiopia ; some eight tribes are mentioned<sup>17</sup> by name, all of whom still exist and it seems probable that some of them occupied the country in which the ruined towns are situated. It is further apparent from the details recorded that they were a purely nomadic people then, as they remain today, and thus would have taken no part in the general life of the towns. A similar state of affairs is found in modern times in British Somaliland, where the trade in the towns is in the hands of the Indian and Arab merchants and the Somalis content themselves with the camel transport of goods, the brokerage of stock brought in for market, and petty trading.

I wish to thank Messrs. Braunholz, Hobson and King, of the British Museum, for their assistance in dating and classifying the finds ; Mr Adrian Digby for all the help he has given me and Miss Cecil Mowbray for assistance with the references.

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<sup>17</sup> The Darod group of tribes are represented by the Giri, Marehan, Herti, Bersuk, Bartire, Hawiya, Yebir and Harla, who are now a section of the Esa but recognize their Darod affinities. The Ishaak group is referred to as 'the people of Mait', Mait Island being the burial place of Sheik Ishaak their founder. They had not at that time reached the position of importance as one of the principal Somali groups. The Giri provided the Cavalry, the Herti and 'people of Mait' were armed with cutlasses, while the Yebir provided the bowmen. Ahmad ibn Abd Al-Kadir, *op. cit.*, pp. 45, 118, 121, 152, 173.

# The Syrian City of Til-Barsib

by M. E. L. MALLOWAN

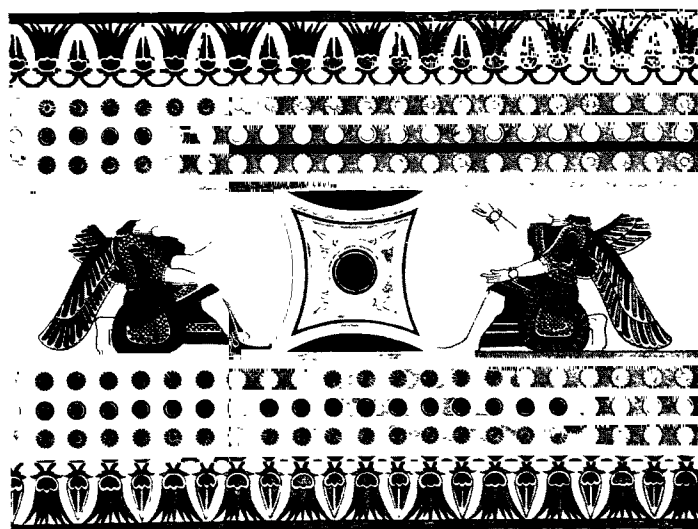
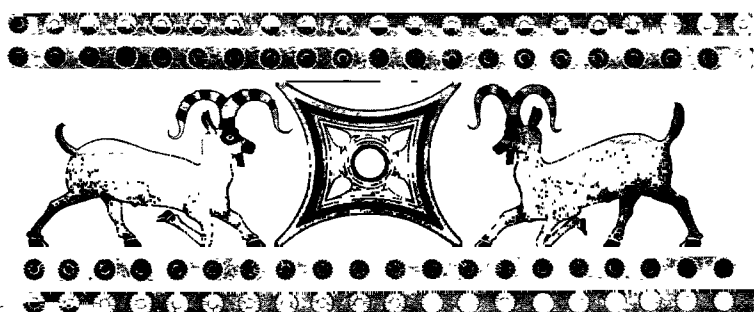
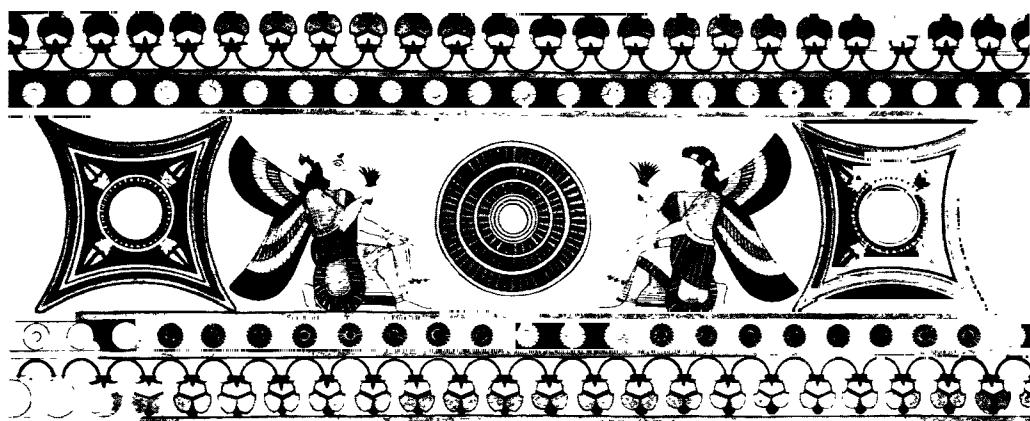
TIL-BARSIB. Par F. Thureau-Dangin et Maurice Dunand avec le concours de Lucien Cavro et Georges Dossin. Paris: Paul Geuthner, 1936. pp. 166 with Album of 53 plates and 5 plans. 200 francs.

THIS volume is a most important contribution to the archaeology of Syria. Tell-'Aḥmar, which lies on the left bank of the Euphrates, 20 kilometres below Carchemish, marks the site of the ancient city of Til-Barsib. As long ago as 1908 the late Dr Hogarth had suggested the identification of this mound with Barsib, and in 1911 Dr Campbell Thompson proved the correctness of Hogarth's surmise by copying and translating an Assyrian inscription which lay on the mound. After making preliminary soundings in 1927 a French Expedition under the auspices of the Musée du Louvre set to work in 1929 and the excavations, involving a total of seven months' work in all, were concluded in 1931. This volume, lavishly illustrated, describes in detail the remarkable results.

The earliest historical references to Til-Barsib occur in the reign of Shalmaneser III, when it appears to have been the capital of an important Aramaean state called Bit-Adini. In 855 B.C. Shalmaneser succeeded in capturing the city, which he turned into an Assyrian colony, endowing it with the new name of Kar-Šulmānašared—'Port Shalmaneser'—and began building a palace. Shalmaneser's successors made rapid headway in this country and under Tiglath-Pileser III the city was apparently the capital of the province of Ḥarrân. Later on Sennacherib used the site as a dockyard for building some of the ships required for his navy. The strategic importance of Barsib, a tête-de-pont on the Euphrates, was its position on a route which kept Guzana (T. Ḥalaf), Ḥarrân, Haddatu (Arslan-Tash) in touch with one another: in other words, it lay on one of the principal routes between Assyria and Syria.

The size and geographical situation of the mound were therefore in themselves a guarantee that T. Aḥmar would produce considerable monuments. The top of the tell was over 25 metres above virgin soil

PLATE I



WALL-PAINTINGS FROM THE ASSYRIAN PALACE, TIL-BARSIB  
(see p. 331)

PLATE II



VOYVI DEPOSIT OF OVER 1000 INTACT CLAY VASES IN A TOWEL AT THE BARSUB 180 p. 340

PLATE III



BRONZE REIN-RING SURMOUNTED BY HORSES IN THE SUMERIAN  
TRADITION OF METAL WORK. FROM THE TIL-BARSIB TOMB  
*see p. 337*



## THE SYRIAN CITY OF TIL-BARSIB

and the main composition of the mound may be described from top to bottom as follows :

1. Islamic and modern debris, 1 metre.
2. Hellenistic debris, 1 metre.
3. Assyrian Palace (Achaemenid tombs intrusive therein), about 6 metres.
4. 'Aramaean' building, about  $1\frac{1}{2}$  metres.
5. A cemetery with cist graves, rich in metal and in pottery, dug into ruined buildings of the third millennium B.C., about  $4\frac{1}{2}$  metres.
6. A series of mud-brick buildings of uncertain date, probably prehistoric-protolithic and no doubt covering a long period, about  $8\frac{1}{2}$  metres.
7. A level containing prehistoric painted pottery of Al 'Ubaid type superimposed over T. Halaf ware which rested on virgin soil, about 3 metres.

The most important discoveries were made in levels 3, 5, and 7, which produced respectively an Assyrian palace with a wonderful series of wall-paintings, a tomb containing the richest single deposit of metal and pottery ever found in Syria, and finally more evidence for the distribution of painted pottery in the chalcolithic period.

Though this review is confined to these three levels we must not overlook the fact that the other levels also produced finds of great interest, *e.g.* important evidence for the dating of Hellenistic terracotta figurines, a number of Achaemenid tombs rich in bronzes, much stone carving, including a number of Hittite sculptures for which T. Ahmar provides an important *terminus ad quem*—the destruction by Shalmaneser in 856 B.C. Lastly there is a large building, possibly a palace founded before the 9th century B.C., and allied in plan to buildings discovered at Carchemish.

The Assyrian palace was defended on the south side by the river Euphrates and on the north by a great town wall roughly semicircular in plan. The ends of the wall abutted on the Euphrates and were 1100 metres apart. This semicircular plan is in keeping with the building tradition witnessed by the defences of Arslan-Tash and Sendjirli. The total length of the Barsib wall was nearly 2 kilometres. It was excavated in outline over a distance of 230 metres and found to be built of mud bricks 37 cms. square resting on a foundation of stones ; at intervals in the wall there were bonding layers of pebbles. Buttresses built at intervals of  $8\frac{1}{2}$  metres gave the wall the enormous maximum

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thickness of  $11\frac{1}{2}$  metres, and theoretically the town should have been impregnable. There seem to have been three main gateways, but only the northeast gate was excavated and this proved to be a formidable structure with guard-rooms in the flanking towers. On either side of the entrance stood a pair of monumental stone lions  $2\frac{1}{2}$  metres in height. The inscriptions on the lions were of exceptional interest because although couched in Royal form they did not mention the king's name—a solecism in the annals of Assyrian history. The inscription served rather to glorify the *tartân* Šamši-ilu, who seems to have been a governor of exceptional power during three reigns, combining in his person the chief civil, military, and religious offices. The Barsib inscription records his victory over Argistis king of Urartu (Van). We learn too that the Assyrians had to fight against the king of Urartu in their own territory and were not on this occasion conducting an offensive campaign as is implied elsewhere in the Assyrian chronicle. But the military prowess which enabled Šamši-ilu to dispense with the king's name is evidence of a considerable decline in the authority of the king during the reign of Shalmaneser IV. That this insult to the royal dignity was not overlooked is proved by the fact that subsequently the name and titles of Šamši-ilu were erased.

The Assyrian palace is described with the methodical thoroughness which we should expect of M. Dunand, the excavator of Byblos. Although only a provincial palace, it is still built on the vast scale which is in keeping with the might of Assyria, and its general disposition brings it into line with the great palaces of Nineveh, Khorsabad, Nimrud and Arslan-Tash. Its aspect must have been tremendously impressive, for standing on an already high mound the building towered over the Euphrates: its great pilastered wall cast alternate bands of light and shade, and the majesty of its exterior prepared the visitor for the magnificence within.

The building is rectangular in plan and the long axis is parallel with the Euphrates, which here flows east. The overall measurements are 130 by 70 metres, but as the building is considerably ruined on three of its sides (especially on the south owing to the Euphrates floods) they must originally have been much larger. Even so, this was one of the smaller Assyrian palaces.

The main entrance at the northwest end of the north wall was protected by two great flanking towers. A secondary entrance may at one time have existed in the northeast end of the east wall. In essentials the palace is a complex of three enormous courtyards, the



## THE SYRIAN CITY OF TIL-BARSIB

largest of which measures 65 by 25 metres. The economy of the palace with its administrative and domestic quarters, the royal apartments and the *harem*, is typically Assyrian. The throne room at the south end of the palace is reasonably preserved and still contains the dais on which the king's throne once stood, while the frescoes in the same room depict the king.

Some of the mud-brick walls were no less than  $4\frac{1}{2}$  metres thick and M. Dunand, who comments on the astounding fact that for the most part there were no foundations whatsoever, supposes that the architects were satisfied that the mere thickness of the walls guaranteed their stability. I think it is also possible that the builders were reluctant to dig down into the disturbed soil of the underlying ruins. On the Habur today builders frequently put up their walls directly on to the existing surface rather than dig down into the disturbed subsoils, and results proved that they are right. Indeed on the south side of Barsib where the Assyrian architects did dig deep foundations for their buttresses the building caved outwards into the Euphrates and suffered severe destruction.

An interesting feature of the palace is the planning of the long narrow corridors which form an internal *chemin de ronde* safeguarding the royal apartments and providing an emergency exit in case of necessity.

Sanitation and drainage were carefully attended to, for the palace contained no less than nine lavatories and two bath-rooms. The arterial system of drainage consisted of a network of underground limestone troughs with control points involving a meticulous system of levelling. These details are further proof of the skill of the Assyrian hydraulic engineers, though the quality of the materials used for drainage varied very considerably.

Most of the floors were of beaten mud, but the courtyards and some of the rooms were stone-paved. Mosaics consisting of large alternate blocks of black basalt and white limestone were a decorative feature of some of the pavements.

The construction of the palace underwent certain modifications in later times. The northeast wing is the oldest and may date back to the time of Shalmaneser III, *c.* 850 B.C.; the main building probably belongs to the eighth century and smaller reconstructions were continued down to the time of Ashur-bani-pal.

But the most important discovery is a marvellous series of wall-paintings (PLATE I) which must take their place as the earliest outstanding landmark in the history of ancient painting.

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I was privileged to pay a visit to T. Ahmar in 1930 and I shall never forget the brilliant impression made by these vivid pictures, the freshness of the paint standing out in all its glory after a shower of rain. It is indeed a tragedy that only a few fragments, distributed between the Louvre and the Aleppo Museum, survive. M. Thureau Danguin, who gives a masterly account of the paintings, says that they were unable to save the mass : it would have been interesting to hear what methods were applied to preserve such specimens as were removed and why the remainder could not be salvaged. Indeed at any time more Assyrian frescoes may come to light and any experience gained in salvaging previous fragments should have been given the fullest publicity.

But though we may lament the loss of most of the originals we have by way of compensation a series of reproductions which are probably as close as copies can be to an original. By a rare stroke of fortune the Expedition was able to secure the services of M. Lucien Cavro, a first class copyist who had already done skilled work in reproducing the recently uncovered mosaics in the Ummayyad mosque at Damascus. We hope that his admirable work will be permanently exhibited in the Louvre. The difficulty of the task has been explained by M. Thureau Danguin : ' C'est peu de dire qu'il a copié ces peintures, il les a déchiffrés '. To some extent therefore interpretation has been necessary, but the copies (made with the aid of tracings) show very clearly what exists and what can be restored with comparative certainty, nor has there been any attempt to fill up complete lacunae with hypothetical reconstructions. M. Cavro's achievement deserves the gratitude of posterity.

The paintings fall into two main groups : the later group belongs to the reign of Ashur-bani-pal, *c.* 650 B.C., and the earlier to some period between 850 and 722 B.C. M. Thureau Danguin's account of the stylistic considerations which must govern any attempt to fix the date of the earlier group is of great importance for an appreciation of the development of Assyrian art. He takes it for certain that these paintings must be earlier than Sargon, *i.e.*, before the seventh century B.C. The particular grounds for this assumption are based on the fact that the oblique drawing of the bunch of fluffy hair at the back of the head is never found in Assyrian art after this date. The general grounds depend on the observation that the musculature, and the broad and vigorous drawing of the figures are stylistically closely akin to the art of Ashur-nasir-pal II. On the other hand the paintings cannot have been executed before the closing years of Shalmaneser III, who was the first

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Assyrian king to conquer Barsib and build an Assyrian palace. M. Thureau Danguin says that the paintings are 'franchement postérieures à Salmanasar', but it seems to me that we have at least to reckon with the possibility that the work may have been begun in the closing years of his reign, *i.e.* after 850 B.C. We therefore arrive at the conclusion that the paintings must fall within the period 850-722 B.C. M. Thureau Danguin however points out a number of technical details which are never found before Tiglath Pileser III, *i.e.* details not known to occur before 745 B.C. These are enumerated as follows: chariots with eight spoked wheels, a quiver standing vertically on the front of a chariot, the king with a flower and a feather fan in his hand, archers with quivers closed by material hanging down from the sides and ending in 'cordonnets houppés', an Assyrian scribe accompanied by an Aramaean who is represented as writing with a brush. These objections however the author does not consider decisive because between Shalmaneser III and Tiglath Pileser III we have a span of three generations (859-745 B.C.) during which material for comparison almost entirely fails us. Further, certain other details are difficult to explain if the frescoes are as late as Tiglath Pileser III. Thus the lower halves of the sword scabbards are generally decorated with double volutes, a fashion which is common in the time of Ashur-nasir-pal II and Shalmaneser III but after that very rarely found (once in the time of Adad Nirari III and only in two other instances in the time of Tiglath Pileser III).

M. Thureau Danguin's opinion on the date of the paintings is summarized in the comment on p. 46, 'Enfin nos peintures ont un aspect assez sensiblement plus archaïque que les sculptures contemporaines de Teglatphalasar; elles ont notamment dans l'expression de la musculature conservé quelque chose du style large et vigoureux qui caractérise les sculptures du IX siècle'. As against this general stylistic consideration however, it seems that there are many details which can very well be paralleled in Sargonid and post-Sargonid times, and I will not do more than point out that there is scope for difference of opinion as to whether the paintings are of the 8th or the 7th centuries B.C., so that it is perhaps wiser to admit with M. Thureau Danguin that we are not yet in a position to settle the question of their date.

The technique of the paintings is simple. The background consists of a white lime distemper which is applied directly to the mud-brick walls. Only three colours were used, black, red and blue, applied without shading. Green and yellow never occur at Barsib. Frequently however the colours were mixed, red with white, giving a pale red, and

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red with blue giving an aubergine tint ; further, a violet red is produced by the admixture of red, black and blue. The blue is of a light tinge nearing cobalt. In the earlier group the entire outline was done in black and the details were then filled in with red and blue, but the red and the blue were never in direct contact, each of these two colours being invariably outlined in black. In the later group the technique was considerably modified : the drawing was done in red, and black was only used to accentuate the most important features.

There are two classes of composition. The first consists of large and spacious designs illustrating the principal activities of the king—attended by his court, at war, receiving tribute from men of Anatolia, reviewing his Beduin captives, hunting, taking on a lion in single combat. It is noteworthy that not the slightest concession is made to any notion of 'feminism', for the subjects represented in the *harem* differ in no way from those in other portions of the palace. As M. Thureau Dangin remarks, this is in keeping with the negligible social status of women in ancient Assyria. One striking detail aptly commented on is the representation of a lion couchant at the feet of the king. It is certain that the lion was no mere symbol of royal authority but a beast that must have been present in the flesh. There are literary references to lions at the Assyrian court and an admirable parallel is quoted from the memoirs of Baron Ser, who recalls how under the 'Directoire' the French Consul at Algiers was received by the Dey whose elbow rested on the back of an enormous lion couchant at his feet. Lions were also kept till recent times at the court of the Negus of Abyssinia.

The second class of composition consists of purely geometric drawings and of apotropaic figures of genii and monsters, bulls and lions, often confined to an upper register. In the royal apartments for example the compositions were disposed as follows from the bottom of the wall upwards :—a bitumen plinth  $\frac{1}{2}$  metre high surmounted by a border 10 cms. wide, a lower register of paintings  $1\frac{1}{2}$  metres in height, then an upper register or frieze 2.3 metres high. The total height of the wall decorations therefore rose to nearly  $4\frac{1}{2}$  metres, or nearly 16 feet.

It is worth observing that there were numerous traces of sketches and designs underlying the eventual frescoes, and it is possible that the artist sometimes painted a trial piece which he executed with a different and final version. There are instances of the final design considerably modifying the preliminary sketch. Another interesting point is that the design of the latest period sometimes kept fairly closely to the older

## THE SYRIAN CITY OF TIL-BARSIB

paintings and in spite of radical differences in style and technique are to some extent influenced by earlier traditions.

M. Thureau Danguin has justly observed that Assyrian sculpture, though rich in masterpieces, often shows an uneven range of artistic merit in execution, and he explains this as due to the fact that the enormous length of surfaces to be covered necessitated the employment of simple artisans who had no part in originating the general scheme. In Assyrian painting on the other hand the artist both designed the general scheme and carried out the details himself : composition and execution went hand in hand.

It is probable that lighting was effected by windows high up in the walls, certainly over 4.4 metres above floor level, in the manner of Islamic buildings. The general effect is best described by translating the author's own words on p. 74. ' On their lime background the paintings stood out sharply and could be discerned perfectly. In the large composition on the lower register colouring was as a rule sparingly applied, and often consisted of no more than a touch or two to show up the outline. By way of contrast paint was lavished on the frieze, which made the upper register brilliantly ornamental. The impression aimed at was an interchange of red against blue : a harmony of the kind may appear simple to our taste, but it is none the less powerful, and the light blues composed of a crystalline powder were enhanced by the darkness of the dull reds '.

Five metres below the level of the Assyrian palace the Expedition made a second discovery of outstanding importance. Underlying a building of the ' Aramaean ' period, and antedating it by a considerable period of time, was a cemetery which contained a variety of tombs including limestone cist-graves and one in mud brick. Richest of all was a stone-paved limestone cist-grave 5.4 metres long by 3 metres wide and 2.1 metres high. The walls were built of dry masonry consisting of rough limestone boulders, and chippings were used to fill up the interstices. The side-walls incurved sharply and the roof consisted of five enormous blocks of limestone and conglomerate laid transversely to the long axis. Outside the tomb, abutting on the end wall, there was a shaft with walls of solid masonry, 2.2 by 1.4 metres and 2.5 metres deep, containing nothing but earth. This shaft communicated with the grave through a doorway which had a stone threshold, and it was obviously used as an access to the tomb. Inside the tomb, or hypogeum as M. Dunand calls it, were the disturbed remains of two human skeletons and a profusion of goats' bones. Together with the

skeletons there was a truly astounding votive deposit consisting of 1045 intact clay vases, which is claimed to be the largest deposit of pottery ever found in a single tomb. An interesting photograph (reproduced here as PLATE II), gives a fine view of the remarkable hoard of booty which greeted the excavators' eyes on opening the tomb. In addition to the pottery there was a collection of bronze weapons and ornaments of the greatest variety and interest.

It would seem that so large a mass of material should be easy to date: unfortunately there is ample scope for disagreement. M. Dunand assigns the whole group to the earlier part of the second millennium B.C., and implies that the objects were made round about 1750 B.C. In my opinion this is very much too late and I am inclined to put the date very much nearer to 2500 B.C. I trust that the ensuing remarks will induce others to rush into the fray.

Although my opinion differs very considerably from that of M. Dunand, I should like to make it clear that his general statement of the evidence is a most valuable piece of work and that he has by no means neglected the parallels that would argue an earlier date. The account of analogous and similar material from other sites is the result of considerable research, but I do not believe that his final conclusion is compatible with the evidence adduced in support of it. Let us examine the position in the way that M. Dunand very fairly presents it. The analogous ceramic material may be summarized as follows:

1. Material from the Orontes valley. Under this heading we may include Mishrifé (the ancient Qatna) which actually lies on a tributary of the Orontes. Much of the pottery from the celebrated tomb IV at Qatna published by Du Mesnil du Buisson is identical with the Barsib tomb group. Qatna tomb IV is dated by du Mesnil to c. 2500 B.C. and I have little doubt that this is approximately correct, for the date of the bronzes in that tomb would agree very well with material from Chagar Bazar, east of the Habur. Under this heading also we must include the pottery from Dnebi and T. As, generally placed between the 23rd and 15th centuries B.C. The analogous types from these two sites, neither of which provided any fixed dating evidence, must be assigned to the upper end of this period.

2. Material from the Sajur valley and Euphrates sites near Aleppo, in particular the objects published by Woolley in *Annals of Art and Archaeology* VI, from Carchemish, Hammam, Kara Hassan and El-Amarna. I think we may now say with confidence that the Carchemish 'champagne' vases are at least as early as 2500 B.C. by reason of

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the early Sumerian metal-types which are contemporary with them. The Carchemish 'champagne' vase occurs in the Barsib tomb. Close parallels also occur at Hammam and Amarna, notably the peculiar tripod bowls from the Barsib tomb. But in considering the relevancy of these parallels we have to remember that the pottery from Hammam and allied cemeteries consists of groups brought in by peasants, and we have no proof whatever that such groups were in fact found together. The Hamman pottery as I believe belongs to at least two different periods which fall respectively before and after 2000 B.C., and I think this conclusion is warranted by recent discoveries at Chagar Bazar. Discoveries on the latter site prove also that the tripod bowl in Syria has a long history, and the rough prototype of the Amarna and Hammam product occurs east of the Habur at least as early as 2700 B.C. Woolley has good grounds for suggesting that the Hamman cemetery is intermediate between the 'champagne' vase cist-graves of Carchemish and the 'Middle Hittite' cemeteries of the second millennium. Recent discoveries enable us I think to be more precise and to suggest that the majority of the unpainted pottery from Hammam is likely to fall within the period 2500-2300 B.C. or thereabouts, and that the painted vases belong to a later group and are post-2000 B.C. The same considerations apply to Amarna which on the whole may be later than Hammam but has many links with it. In general I believe that the relevant material from this group of sites argues for the Barsib finds a date before 2300 B.C.

3. Material from the Tigris and the lower Euphrates valley. Kish A, Ur Royal Cemetery, Gawra 7. Analogous and similar pottery not later than 2500 B.C.

Here therefore we have a wide variety of ceramic arguing an early date : we shall a little later consider certain exceptions.

The second type of evidence to be summarized is the metal. Here the balance of the evidence is overwhelmingly early. ' Avec les bronzes il faut revenir au pays de Sumer pour trouver les analogies les plus frappantes '. A pickaxe and some of the flanged axes are so similar to material from the pre-Sargonid graves in the royal cemetery of Ur that they might have come out of the same workshop. There is an axe very closely paralleled in Gawra VI, a flanged axe identical with a specimen from Luristan, and a parallel at Susa recently published by de Mecquenem is said to belong to the third dynasty of Ur. The axes with antithetical animals are in the Sumerian tradition, and there is a rein-ring surmounted by a pair of horses (PLATE III), another link with the Kish and Ur cemeteries.

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As against this abundance of early material only a few of the metal objects have later parallels. The crescentic axe is a type that persists, and some of the pins and daggers have later Anatolian and Cypriote analogies.

To return to the pottery, there are a few types which might be subsequent to 2500 B.C. but some of the late parallels which M. Dunand refers to T. Beit Mirsim in Palestine are inexact. Thus plates XXIII, 10-20, and XXIV, 1-5 are far closer to forms of the 3rd millennium featured by the Billa ware. On the other hand the Jericho vase with a spout in the form of a ram's head published by Garstang in *Annals of Art and Archaeology* xx, fig. 4, no. 5 of c. 1650 B.C. is very similar to Barsib, pl. XXVII no. 1, A though the shape is different: on pl. XXV nos. 11-13, and pl. XXVI nos. 2, 3 the vases and jugs are much closer to Palestinian and early Cypriote Bronze Age forms. The latter types are never found in Sumer in the third millennium and are interesting as being in a non-Sumerian tradition. The argument on p. 114, footnote 5, that the amphora is attested at Nineveh in the third millennium is wrong. The reference is misquoted and should read AAA. XIX, plate LII, no. 13, and the apparently similar amphora from Nineveh so far from being early is Romano-Parthian and decorated with a porous blue glaze.

The most cogent argument for a later date is a type illustrated on plate XXII, nos. 12-15, and XXIII, nos. 1-4, which is said to show examples painted with three bands of red ochre. It is unfortunate that no illustration is given of these painted examples, but the description seems very definitely to imply that they are similar to a painted ware belonging to the later group at Hammam and to Chagar Bazar types which are subsequent to 2000 B.C.

Apart then from a few exceptions both the pottery and the metal are most nearly related to material which occurs elsewhere in contexts definitely earlier than 2500 B.C. But the appearance of unmistakable horses on the bronze rein-ring, and the well developed forms which may have taken some time to work up the Euphrates valley from Sumer, the principal centre of their manufacture, may imply a certain time-lag. We may therefore concede that the pottery as well as the metal may have been deposited between 2500-2300, though I still incline to the earlier date.

How are we to account for the few later objects? It is injudicious to attempt to deny their existence, just as it is in my opinion injudicious to attempt to assign objects hardly ever found after 2500 B.C. to a period



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later than 2000 B.C. I would therefore be inclined to explain the contents of this tomb as belonging to more than one period. This theory would account for some strange features which may be summarized as follows :

1. Why this enormous deposit of 1045 vases ? Numerically five times as great as any other yet discovered in Sumer and three times as great as any discovered in Syria. If the deposit covers more than one period we have an easy explanation for the size of the deposit.

2. The tomb has an access in the form of a well-shaft offering every facility for approach in later periods.

3. The skeletons in the tomb appear to have been disturbed. This fact is in itself evidence of later intrusion, and there were apparently no signs of desecration. (It is possible however that this disturbance was in part due to the fall of a portion of the roof).

4. In the tomb there were numerous goats' bones which must have been the remains of some ritual feast.

We may note further that evidence from the royal cemetery of Ur showed that early dynastic tombs had some kind of superstructure and that commemorative sacrifices were probably made. The practice of venerating a ' Saints ' tomb is endemic in the East and often involves deposits over a period which may cover some hundreds of years. It is for the excavator to say whether there is any insuperable argument against this hypothesis. If the theory is valid our difficulties are solved ; if not then the mass of evidence inclining to the earlier date must I think outweigh the later analogies.

In conclusion we have to touch on the very interesting prehistoric painted sherds discovered in the bottom three metres of the mound, the earliest of them resting directly on virgin soil. In the upper levels of this stratum there are sherds which apparently resemble the Al 'Ubaid ware of Arpachiyah—the northern variety of Al 'Ubaid : *cf.* pl. xxxv, nos. 1, 3, 18. In the lowest strata there are sherds which are identical with the older T. Halaf ware, but inferior in quality. M. Dunand makes a sound observation when he implies that the fabric is a Western provincial variety of a pottery which had as its centre of development the basin of the Upper Tigris.

## Notes and News

### PILE-HOUSES (PLATE I)

Ever since the Swiss and Italian lake-villages were discovered, houses built on wooden piles have necessarily had an interest for European archaeologists. Modern parallels have been found in New Guinea ; but others nearer home have been overlooked. PLATE I shows buildings at Jajce near Travnik in Yugoslavia representing, in a modified form, the modern survival of a habit that goes back to the neolithic period in Central Europe. Note that the whole of the structure is made of wood, including the roof with its wooden shingles. These last are a constant feature of houses in mountain regions ; I have seen them myself not only in the Balkans (where Mrs Piggott's photograph was taken) but also in the Caucasus and at Kakopetria, in the foothills of the Cypriot mountains. They are used also throughout the Himalayas and beyond into China and Burma.

Such houses, when abandoned, would gradually melt into the soil. Not even the piles would survive, except as 'post-holes', for there would be no water to preserve them, as happened when the houses were built on the shore of a lake. All the archaeologist would find presumably would be a slightly deeper layer of top-soil, perhaps even a slight mound, and a quantity of remains. For we need not doubt that the space beneath the floor would serve as a dump for broken pots and rubbish of every kind. The possibility that prolific sites like All Cannings Cross were occupied by pile-houses was suggested at the time by the excavators. It is a possible explanation that should be borne in mind, especially in damp or marshy regions. For 'damp' was the reason given on the spot to account for the cottages on low piles at Sukhum in Abkhasia. The place lies at the foot of the Caucasus, on the north shore of the Black Sea, and only a few yards from it. There is a considerable annual rainfall, but the site in question is not one that could ever be flooded ; and I suspect that 'damp' rather than actual water is the effective cause. For the wooden walls and floors of a house thus raised up must be much drier and less

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apt to rot away than those almost in contact with the soil. The air circulates freely underneath and must help to keep the house dry. The wooden huts so familiar during the last war were all built on this principle, though of course the elevation was very slight.

The upland farms further inland often have a verandah in front, raised on piles ; but this may be due to the difficulty of obtaining a level surface to build on when the land slopes steeply and the subsoil is hard rock. Indeed, the difficulty of obtaining a level surface may be one reason why piles were used in other cases.

Everywhere it is usual, even today, to build granaries on piles, to keep rats out. Sometimes mushroom-like stone supports (known in Wessex as ' staddle-stones ' or ' staddles ') serve the same purpose for straw- and hay-ricks.

O.G.S.C.

### ARAB MAP OF THE BRITISH ISLES (PLATES II-III)

Abû 'Abdallâh Muhammad al Idrisi (commonly called Edrisi) ' is said to have been born in Ceuta about A.D. 1099, to have studied in Cordova, and to have made extensive voyages in Spain, to the shores of France, and even of England, to Morocco and Asia Minor. It is certain that in the latter part of his life he resided for a considerable time at the court of the Norman king of Sicily, Roger II, which during the Crusades was a meeting-place of Normans, Greeks and Franks. According to Edrisi's account, Roger collected through interpreters geographical information from all travellers, caused a map to be drawn on which every place was marked, and had a silver planisphere made, weighing 450 Roman pounds, upon which were engraved the seven climates of the earth, with their countries, rivers, bays, etc. Edrisi wrote for him his description of the earth in Arabic, which was completed in 1154, and was accompanied by seventy maps and a map of the world '.\*

Edrisi's knowledge of British conditions was crude. He describes it as ' a considerable island whose shape is that of an ostrich's head . . . The country is fertile ; its inhabitants are fine, active and enterprising people, but perpetual winter reigns there '. When we reflect upon the fact that winter weather in, let us say, Cyprus, is more or less equivalent to that of a bad (or average) English summer, this statement acquires more meaning and is seen to be approximately true.

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\* Fridtjof Nansen, *In Northern Mists*, 1911, II, 202-3.

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Edrisi mentioned the following places :—

Suggested Identification	Paris MS	Bodleian MS
1 Dover	Davras	Dar...s(?)
2 London	Londres	Londres
3 Yarmouth	Jartmuda	Jartjams
4 Hertford	Gharkfarth	Gharkfort
5 Boston	Bashka	Baska
6 Lincoln	Nikolas	Niklus (?)
7 Grimsby	Aghrimes	
8 Salisbury		Salabus
9 Wareham	Gharham	Bayham
10 Southampton	Haynna (Hatuna)	
11 Shoreham	Sharham	Sarham
12 Hastings	Hastings	Hastikip
13 York	Afardik	Karandaka
14 Durham	Darham	Diylami (?)

England falls awkwardly on the sectional maps provided, being divided up between three of them. Moreover the names are all written in Arabic and by no means easy to decipher. There is no attempt at a scale. The draughtsman seems never to have been able to decide whether he was drawing a picture or a map : indeed as pictures, or rather as geometric patterns the maps are by no means without merit.

The identifications and readings given above have been most kindly made for ANTIQUITY by Sir Denison Ross ; and the explanatory diagram is based upon one supplied by him. Sir Denison Ross adds :— ‘ My notes on the Paris MS are based solely on Lelewel’s well known but all too rare *Geographie du moyen âge*, and if you are making any use of my notes, attention should be called to this indebtedness ’. Thanks are also due to Mr Edward Lynam, of the Map Room, British Museum, for his help in the preliminary task of locating the manuscripts.

### POTS AND CULTURE (PLATE IV)

Archaeology is intimately concerned with pottery which, with the possible exception of flints on a few early sites, is the most abundant of all remains, and one of the most useful. Many cultures are known and named from their characteristic pottery. It is natural therefore that archaeologists, who habitually think in terms of pottery, should be inclined to associate that which is well made or aesthetically pleasing with a high cultural level in the society which produced it ; and to

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regard crude, coarsely made wares as evidence of a low level. Similarly, evidence of advance or decline in the art of pot-making is regarded, by inference, as indicating an advance or decline of culture.

How far are such inferences justifiable? If by culture we mean 'material culture' it is evident that, since pottery forms one of the elements of which material culture is composed, its character is legitimate evidence, taken together with other kinds of evidence for the state of the material culture of the community which produced it. Thus far we may legitimately go. But is it legitimate also to conclude that the whole culture—that is, the general standard of living—of a community can be at all indicated by the character of its pottery?

Difficult but fascinating problems are raised, involving basic principles. We sometimes talk of a 'community' as if it were a single indivisible unit with a single standard of living; but has such a community ever existed, at any rate since the days of the first self-sufficient agricultural community, if then? Were there not always rich and poor, the one using 'better' pots than the other? And what do we mean by a 'better' pot? Is china-ware 'better' than glazed earthenware, or plate than china? Was Samian 'better' than Belgic ware? We may safely answer 'yes' to the last two questions and proceed to draw the obvious inferences.

But is it safe, when we find two contemporary variants of the same type of pot in two different places, the one better made than the other, to infer anything by a difference of technical skill? On PLATE IV are illustrations of two pots, seen from two different angles. The one on the left was bought in the native quarter of Alexandria, the other was bought the next day at Athens (and weighs 3 lbs. 5 oz.) The Alexandrian pot is squat, heavy (weighs  $4\frac{1}{2}$  lbs.), thick-sided and rather coarsely made. On its sides are contact-scars produced during firing, and its rim is chipped by contact with other pots either during firing or transport. (I tried in vain to find one free from these blemishes). One of the handles is badly formed. The Greek pot, on the other hand, is much lighter and thinner; the base is narrower (though quite adequate for support) and the handles are attached lower down. None of the blemishes of the other occurs. The paste is finer and less gritty, and the appearance and colour are (to me) more pleasing. These characteristics are, with the exception of the last, objective; moreover, since I believe (from fairly close observation) that both pots are typical—the Alexandrian was selected after prolonged observation and inspection of others—they may fairly be used as a test case.

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Admitting the better craftsmanship of the Athenian pot, which could hardly be denied, are we justified in going further, and inferring that the culture-level, the standard of living, of the Alexandrian community (or a part of it) is lower than that of the Athenian (or a part of it)?

Now we do know something about living conditions in Alexandria and Athens; and I do not think that any one familiar with both would hesitate for a moment if he were asked which was the better of the two. Alexandria is probably no worse than many other Egyptian towns; but the filth of its streets and the squalor of its houses is plain to every observer. Moreover the Arab culture generally is undoubtedly on a far lower level than that of the Greeks. So far as mere observation goes, then, it agrees entirely with the inferences that might be drawn by a speculative archaeologist excavating the sites of Athens and Alexandria several centuries hence.

Can we go further and detect, in the superior craftsmanship, any faint echoes of that superb artistic skill which produced the Greek vases of classical times? To do so would be, I think, unwarranted, because there are so many missing links. But surely some lingering remnant of the Keramikos may still survive, even if the tradition cannot be proved to have continued unbroken since classical times.

My purpose, however, is to state rather than to solve the problem. In conclusion, I would refer those who are interested to some very suggestive remarks by the late Dr Hogarth, in his *Twilight of History*, p. 4 (8th Earl Grey Memorial Lecture, Oxford, 1926). O.G.S.C.

### A PASSAGE ON SCULPTURE BY DIODORUS OF SICILY\*

‘Also of the ancient sculptors the most renowned sojourned among them (*i.e.* the Egyptians (H.M.)) namely Telecles and Theodorus, the sons of Rhoecus, who executed for the people of Samos the wooden statue of the Pythian Apollo. For one half of the statue, as the account is given, was worked by Telecles in Samos, and the other half was finished by his brother Theodorus at Ephesus; and when the two parts were brought together they fitted so perfectly that the whole work had the appearance of having been done by one man. This method of working is practised nowhere among the Greeks, but it is followed generally among the Egyptians. For with them the symmetrical proportions of the statues are not fixed in accordance with the appearance they represent to the artist’s eye, as is done among the Greeks, but as

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\* Diodorus of Sicily, Book 1, 98, 5-9. Translated by C. H. Oldfather.

PLATE I



PILE-DWELLINGS JAICE, NEAR TRAVNIK, YUGOSLAVIA 1935 (see p. 340)

ph. C. M. Pagott

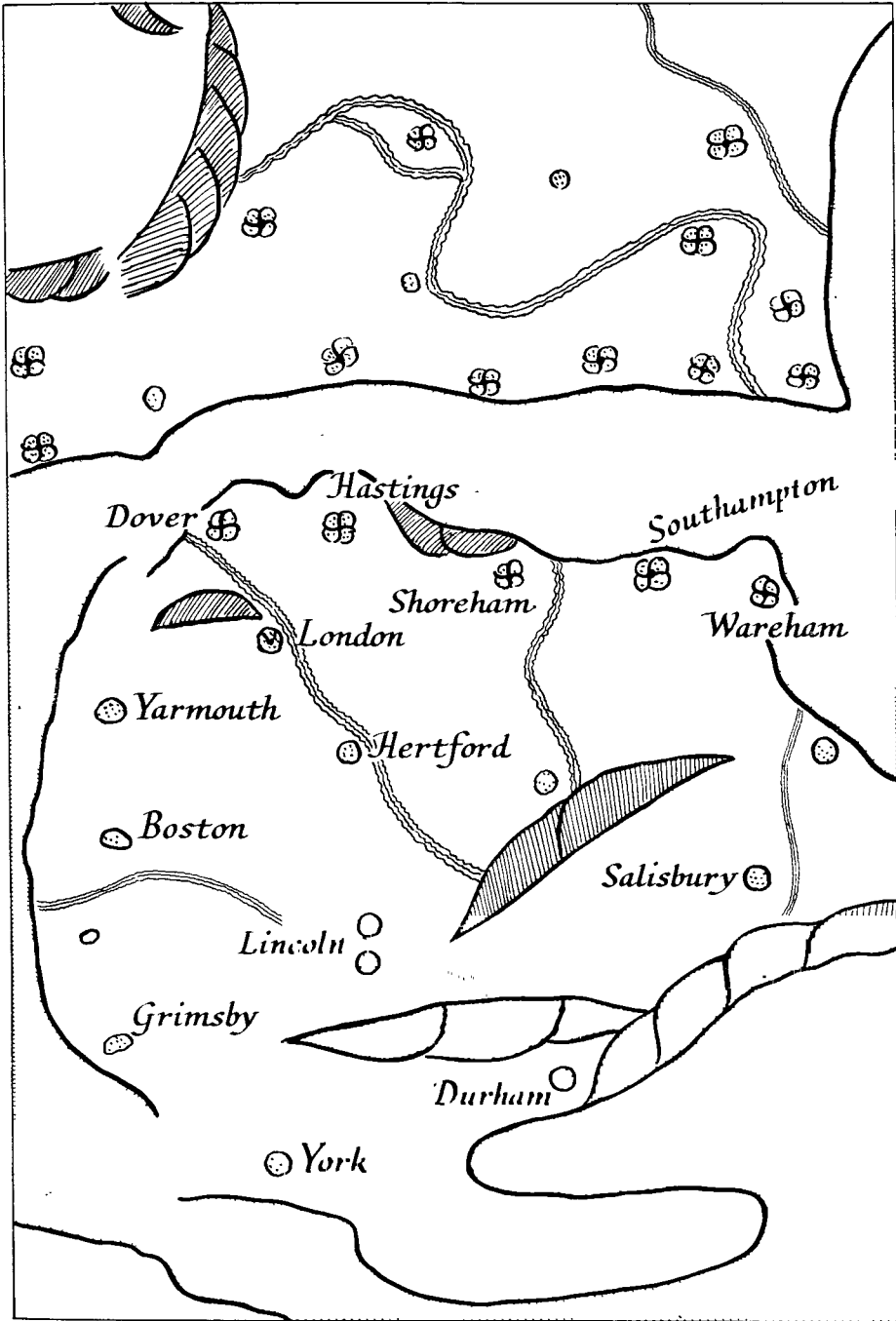
PLATE II



ARAB MAP (12TH CENTURY) OF PART OF THE BRITISH ISLES  
PREPARED FOR ROGER II, KING OF SICILY (see p. 311)



PLATE III



MODERN RE-CONSTRUCTION OF THE ARAB MAP ILLUSTRATED ON PLATE II

PLATE IV



MODERN FOLDS BOUGHT AT ALEXANDRIA (LEFT) AND ATHENS (RIGHT) (SEP. 1929)  
*ph. Max Moll*

## NOTES AND NEWS

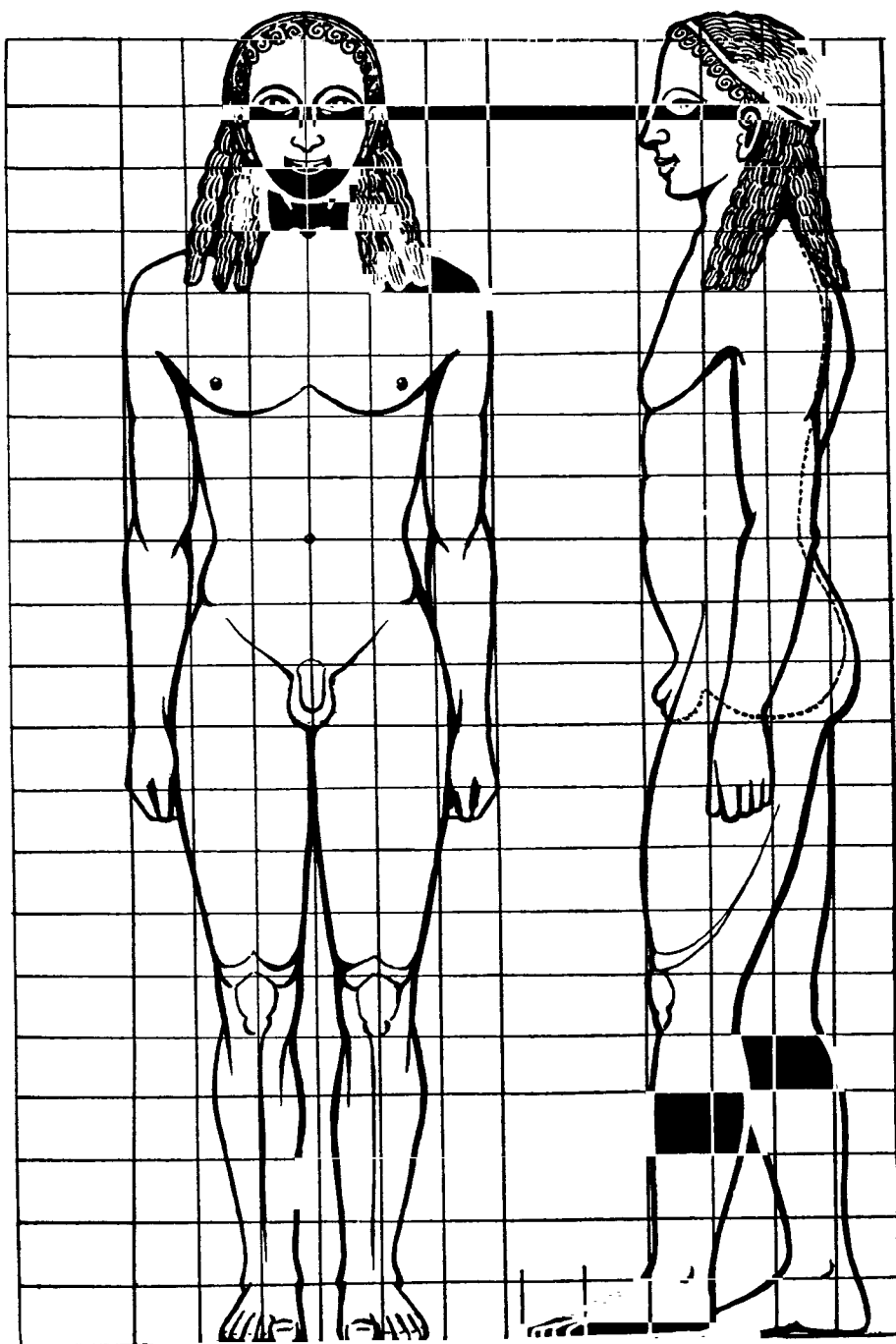
soon as they lay out the stones and, after apportioning them, are ready to work on them, at that stage they take the proportions, from the smallest parts to the largest ; for, dividing the structure of the entire body into twenty-one parts and one fourth in addition, they express in this way the complete figure in its symmetrical proportions. Consequently, so soon as the artisans agree as to the size of the statue, they separate and proceed to turn out the various sizes assigned to them, in such a way that they correspond, and they do it so accurately that the peculiarity of their system excites amazement. And the wooden statue in Samos, in conformity with the ingenious method of the Egyptians, was cut into two parts from the top of the head down to the private parts and the statue was divided in the middle, each part exactly matching the other at every point. And they say that this statue is for the most part rather similar to those of Egypt, as having the arms stretched stiffly down the sides and the legs separated in a stride '.

The above passage by Diodorus of Sicily has excited considerable interest among classical scholars, but hitherto no generally acceptable explanation of its meaning has been suggested. There is no ambiguity in the account itself, but it would seem that the processes involved are unfamiliar to the general reader. From an examination of those works of the early Hellenic sculptors which chance has preserved, or the spade of the excavator has unearthed, and are available for our study, it is clear that the strongest technical influence in the spectacular rise of Greek sculpture between the 7th and the 5th centuries before Christ was that of Egypt. The grant by Psamtik I of treaty ports in the Delta, and the visits of Greek travellers and craftsmen to Memphis and Thebes resulted in a general advance in culture, and an added interest in, and demand for, works of art. So, any attempted solution of our problem must necessarily take into account the figure sculpture which was being produced in the sculptors' workshops of Egypt, as well as that issuing from the workshops of their pupils in Crete, Samos, and other Hellenic lands. It is probable that Telecles and Theodorus followed the studio practice of their Egyptian master, but neither the Egyptian sculptors nor the archaic Greeks had any *general* canon, as Diodorus suggests. In later years both Polykleitos and Lysippus produced statues which embodied canons of proportion which their own studies of the figure had led them to favour. But in neither case did the canon thus evolved have currency beyond the immediate circle of that sculptor's followers. The illustration (page 347), shows a composite figure, the proportions of

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which are based upon those of a number of works in the Athens and other museums. It may help us to understand something of the methods employed by Telecles and Theodorus, though it is not suggested that the proportions shown are exactly those employed by the two artists. Diodorus states that the figure was divided into the twenty-one parts, and a quarter of a part in addition. This last fraction may be dealt with at once. The head of an Egyptian statue was frequently surmounted by a wig, a cloth head-dress, a crown, a pair of arms or other device. Now these structures vary considerably in height, from the low cloth cap to the tall crown of Upper Egypt. Therefore, the Egyptian sculptor allowed the quarter unit for the hair, and took the top of the forehead—the hair-line—as the upper limit of his figure instead of the (often invisible) top of the head. His scale was divided into twenty-one parts or units. In the drawing it will be seen how convenient a scale one of twenty-one units would prove. Reckoning upwards from the top of the base it will be seen that units mark the top of the instep ; the bottom and top of the knee ; the end of the torso ; the widest part of the hips and the wrist ; the bottom of the abdomen ; the anterior spine of the ilium ; the navel, the waist and the elbow ; the lower border of the pectoral muscle and that of the deltoid ; the limit of the armpit ; the end of the hair ; the pit of the neck ; the mouth ; and the eye. Across the figure single units mark the width of the ankle and the lower part of the knee ; the face takes two units, the waist and the nipples three ; shoulders, forearms and hands six, and so on. In the side view it will be noted that three and a half units mark the width over the shoulder blades, and over the gluteal mass. Also that there is a similar distance between the top of the instep of the left leg and the heel of the right. Both head and foot take three units, the body at the waist two and a half. There are many other places where structural forms and units of measurement coincide. Again the right heel, the gluteal masses and the shoulder blades touch one vertical line, as also do the front of the left leg and thigh, the abdomen, the pectoral muscles, and the nose. The dividing line passes straight through the centre of the figure. In the side view it is shown as a dotted line within the outline of the figure at the back and lower portions of the torso, where that part of its course is hidden by nearer portions of the figure.

It seems to have been the Egyptian custom to set out the number of units required, in a series of parallel lines on the front, the back and both sides of the block of stone or wood from which the statue was to be carved. The profiles were drawn in, and those parts of the material



DRAWING FOR A CARVED FIGURE OF APOLLO, SET OUT ACCORDING TO THE  
METHOD DESCRIBED BY DIODORUS

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which were outside the profiles, as drawn, were cut away. In the course of work a good many of the original lines would be destroyed, but a sufficient number would be carefully preserved till the completion of the carving, in order that measurements might be verified when necessary.

Let us return to Telecles and Theodorus for a minute. They would have no difficulty whatever in making the principal points in their respective half figures to correspond exactly, for the position of each was definitely laid down in the canon by which they worked. But what about the finer details, say the profile of the face? From the drawing it will be seen that this commences at the hair-line in the centre of the upper border of the twenty-first unit, and that the nose touches the centre of the left-hand border of the twentieth unit. What of the line between? Here we should remember that the two sculptors are said to have been brothers, and that they had been trained together to work in the Egyptian manner. Now, in order to train the eye and hand, it was the custom of the Egyptian sculptor to make innumerable trial-pieces before undertaking more important work. Many hundreds of these trial-pieces have come down to us, and show how thorough was the training imposed upon a young sculptor. There can be little doubt that the two craftsmen could easily come to an agreement as to the exact type of profile which should be adopted for the Apollo, and each could carve his half figure without further reference to the other.

One last point. When the halves were brought together for assembly, dowel-holes would be cut in each, and tenons fitted. The two halves would be glued together and kept under pressure till the glue had set. Some of the glue would be found to have squeezed out of the joint, and would need to be scraped off. At this time any slight lack of correspondence between the two halves would disappear, scraped off with the glue, just as any irregularity in a wooden box is 'cleaned off' with the plane after the parts have been glued together. The artist who fitted the two halves of the statue together could be trusted to put in any necessary finishing touches, and the coats of paint which all statues received would cover up all traces of the joint.

HERBERT MARYON.

## EARLY ROCK-CUT TOMBS IN IRELAND

### 1. KELLY'S CAVE, CONG

In fine weather no visitor to the strip of land separating the great lakes of Corrib and Mask, who is also familiar with the limestone areas bordering the Mediterranean, can fail to be struck by their similarity to

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each other. To the south also the bare limestone hills of the Barony of Burren rising from the waters of Galway bay are even more Mediterranean in appearance.

The Cong isthmus is a western extension of a great area of flat and arid tabular limestone, bearing intermittent deposits of fertile drift material, and at Cong itself is abundance of water, as, in addition to the lakes, there are great uprisings from the subterranean ways by which the water of Mask reaches the Corrib. Aided by the more kindly climate of the Early Bronze Age, this combination of natural features would have produced a dry but well-watered region, free from forest but providing much land capable of cultivation; while immediately adjoining were the lakes teeming with fish, and a few miles to the west the wooded fastnesses of the Connemara mountains.

Thus the immigrant from Mediterranean countries would have found a desirable land well provided with the necessities and luxuries of life, and closely resembling his own home.

Good evidence that at least one family of the migrants or their descendants reached the isthmus is provided by a rock-cut tomb close to Cong, known as Kelly's Cave, which is typical of those in the Mediterranean lands, *e.g.* in Mallorca, Sicily and South France (near Arles), which extended also to the Marne in North France. It is, I believe, significant that both the French groups were originally close to large areas of water.

At Kelly's Cave, although it is much encumbered by rubbish and falls of rock from the roof and sides, many of the features which are typical of such caves as that of San Caulellas in Mallorca<sup>1</sup> can be clearly distinguished. About a dozen steps lead down in a sunken forecourt, 8 ft. to 10 ft. wide, of which the sides are of rock supplemented by dry walling. At the foot of the steps is a narrow entrance cut in the limestone, 5 ft. 6 ins. high and 2 ft. 6 ins. wide, with a slightly rounded top. The rock wall which it pierces is 2 ft. thick and inside is the main chamber; at the entrance the chamber is 8 ft. 6 in. wide, but its general width is 10 or 11 ft., its length some 50 ft., and its height varies from 10 ft. to 15 ft. (probably owing to falls of rock). The end at the entrance is roughly rectangular, the wall at the far end is curved, and in it, almost covered by loose stones is a low entrance leading to a second chamber—mainly of natural origin—which is now practically inaccessible.

The main chamber is probably partly natural also and owing to the hardness of the rock and its tendency to cleavage along the natural

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<sup>1</sup> *Proceedings of the Prehistoric Society*, 1935, p. 110, pl. ix.

## ANTIQUITY

lines, of which advantage was taken by the makers, it is sometimes difficult to distinguish between the work of nature and of man.

One feature, however, is undoubtedly ancient and of human origin ; along the sides of the main chamber are two low ' benches ' built up of small stones and now concreted solid by lime. So far as these benches are visible they precisely resemble those cut in the softer rock at most of the Mallorcan caves, and built up in some of the Scottish chambered cairns and one in Wales.<sup>2</sup>

Another point of resemblance is a platform ending in steps down, which occupies the first 6 ft. of the cave within the entrance.

In the left side is an alcove which may be natural, but has the appearance of a side chamber.

### 2. ST. KEVIN'S BED, GLENDALOUGH

This is of much smaller proportions than Kelly's Cave and has long been associated with Saint Kevin, who founded the early Christian settlement at Glendalough and died there in 618. Some 30 ft. above the upper lake, in a sheer rock face, is a rectangular opening 2 ft. 6 in. wide and 3 ft. 3 in. high. This is the entrance to a short passage, only distinguished from the main chamber by a low step and a slight widening of the walls beyond the step. To the left of the centre line is another comparatively wide ' passage ' which ends in a shallow recess, marked by a gathering in of the sides and roof to form what was ritually a side or end chamber, in spite of its small dimensions.

The greatest height of the main chamber is 3 ft. 7 in., with a width of 4 ft. 2 in. and the total length from the main entrance to the end of the side chamber is 6 ft. 9 in.<sup>3</sup>

The cave must have been practically inaccessible when first used, but approach is now made more easy by the breaking away of part of the entrance and of the adjoining rock, which is of a slaty nature, more easily worked than the limestone at Cong.

The site and plan of this cave closely resemble some in the great Sicilian cemetery at Pantalica.

Until quite lately no rock-cut tombs were known in Britain or Ireland, but the two examples here recorded complement the recent recognition of the chambers cut in the Dwarfie Stane at Hoy in Orkney as a tomb of orthodox Mediterranean type.<sup>4</sup>

W. J. HEMP.

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<sup>2</sup> Bryn Celli Ddu in Anglesey.

<sup>3</sup> *National Monuments, Ireland, Glendalough*. Revised 1925, p. 5.

<sup>4</sup> *Proc. Soc. Ant. Scot.*, LXX, 217.



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### THE INDUS CIVILIZATION

It is now clear from the more recent excavations in Sind, at Chanhudaro and elsewhere, that the Indus civilization endured over a long period of time and can be subdivided into phases distinguished by individual cultural manifestations like the predynastic Egyptian and pre- and protohistoric Mesopotamian civilizations.

Archaeological practice throughout the world is to designate such phases by conventional names taken from sites where the phase in question is well represented (*e.g.*, Badarian, Amratian, etc., in Egypt; al 'Ubaid, Uruk, etc., in Mesopotamia). In accordance with this established usage, Mackay has happily and euphoniously designated the best known phase of the Indus Civilization the Harappa culture: its immediate predecessor will presumably take its name from Amri, its successor from Jhukar. I do not know how one could write scientifically about ancient India today without employing such terms.

V. GORDON CHILDE.

### SYMPOSIUM ON EARLY MAN, PHILADELPHIA

Dr Edgar B. Howard's discoveries of artifacts associated unambiguously with extinct animals in New Mexico doubtless provided the occasion for the Symposium on Early Man organized by the Academy of Natural Sciences of Philadelphia from 17th to 20th March 1937. But its deliberations were by no means confined to man's antiquity in the New World alone: Old World prehistory was represented by V. G. Childe and Dorothy Garrod (Britain), K. Birket Smith (Denmark), A. W. Brøgger (Norway), O. Menghin (Austria), H. de Terra (India), G. H. R. von Koenigswald (Java), Teilhard de Chardin (China), R. Broom (South Africa) and others. And the central aim of the organizers was to coordinate the several disciplines bearing on questions of man's antiquity and to inaugurate a concerted attack on the problem by geologists, botanists, zoologists and climatologists supporting archaeologists and anthropologists. The symposium did in fact provide an inspiring example of the cooperation of these several sciences and initiated a movement full of promise. 'Conclusions' that could be summarized in a few lines here could not result from a pioneer gathering: while it was agreed that makers of Folsom points coexisted with a 'pleistocene' fauna, how long that fauna persisted remains uncertain, and European typologists have nothing to set beside the type-fossil. However, a round table discussion on Asiatic chronology agreed upon some tentative correlations of the Indian, Javanese

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and Chinese sequences that may prove epoch-making. Such discussions together with long illustrated summaries of the formal papers will be published under the sponsorship of the Academy in a volume that all interested in early man should order now. V.G.C.

### CARVED STONES, BRITISH SOMALILAND (PLATES V-VIII)

A study of Somali graves at Herirat on the British Somaliland-Ethiopian boundary revealed the fact that, on a number of them, stones of a distinctly phallic character had been erected. This discovery led to a search of the immediate vicinity, which brought to light a further number of carved stones of various types.

Herirat, which lies at the west end of a pass of that name leading from the coastal plain behind Zeila to Harar in Ethiopia, following the easiest route, is reputed by the local natives to have been the site of an old town, but no trace whatever exists to support such a statement. There are, however, a number of recent graves of the Esa Somalis and a large cairn of stones 18 feet high, probably a pagan burial of an earlier epoch, with the remains of a small building, originally about 10 feet square but now reduced to a mere pile of stones, in the foundations of which are revealed dressed slabs of corallian limestone.

The local natives did not notice that the carved stones had any suggestion of phallicism about them, until it was pointed out to them. They then suggested that they had been found on the site and made use of so as to save trouble. A number of flat dressed stones on the site had also been incorporated in Somali burials and are of the same corallian stone as the carvings. There can be little doubt that the dressed stone was removed from the square building referred to above.

The carved stones which were first noted are shown in PLATE V and can be observed at both ends of the grave ; another similar type of symbol also associated with a grave is shown in PLATE VI ; it was possible to remove this and it is now in the Department of Ethnology at the British Museum. Another carved type which resembles a winged nut on a bolt is depicted in PLATE VII ; it was being utilized as the head-stone of a grave. Two other carved stones were found leaning up against the headstone of another grave ; they each have four square prongs on the top. It is interesting to observe that a raised ring is carved round all the stones depicted on plates v-vii.

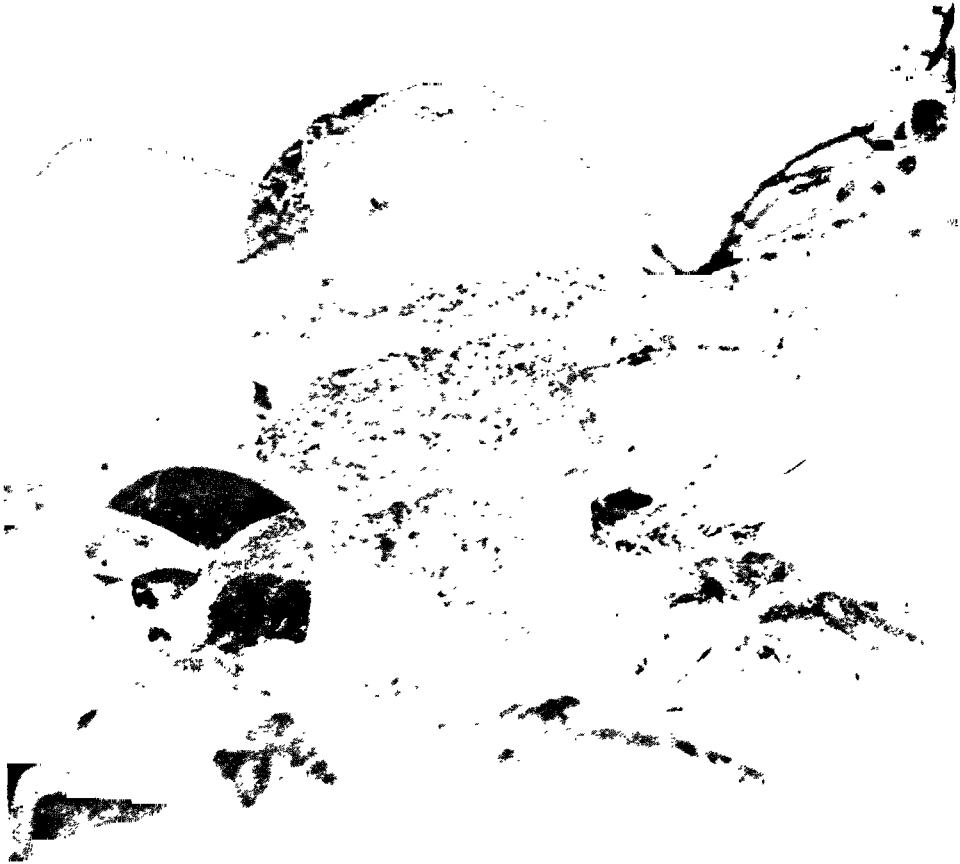
The stones which it has been possible to examine all taper very slightly towards the base and were clearly intended to be free-standing.

PLATE V



ISA SOMALI GRAVE WITH CARVED STONE OF PHALLIC CHARACTER AT EACH END (see p. 352)

PLATE VI



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CARVED PHALLIC STONE NOW IN THE BRITISH MUSEUM (*see p. 352*)

PLATE VII



CARVED STONE RESEMBLING A WINGED-NUT ON A BOLT (see p. 352)

PLATE VIII



GRAVE AT HORE, SOMALILAND (52 D. 353)

PLATE IX



(C) GRAVEL WITH 'OFFRINGS' OF WHITE QUARTZ PEBBLES  
AND SEA-SHELLS, LLANDDANIEL, ANGLESEY (see p. 355)

*ph. S. Piggott*



(D) BAEYTL OF BLACK IGNEOUS ROCK SURROUNDED BY WHITE QUARTZ  
PEBBLES (see p. 355) DENMARCH MUSEUM, FINSTÈRE.

*ph. C. M. Piggott*

PLATE X



BAKING-OVEN, CHILE (see p. 355)



PLATE XI



BOWL FROM AN EARLY BRONZE AGE NECROPOLIS AT  
VOUNOUS, CYPRUS (*see* p. 356)



EARLY BRONZE AGE TOMB, VOUNOUS, CYPRUS (*see* p. 356)

PLATE XII

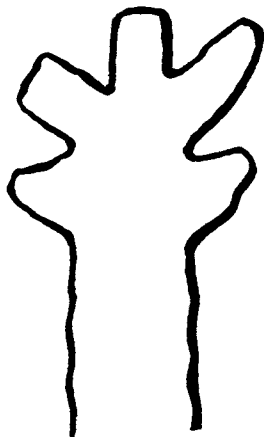


BRONZE DAGGER OF HYKSOS DATE (c. 1700-1555 B.C.) WITH INSCRIBED SIGNS (see p. 350)  
ph. J. L. Starkey

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A further search in the thick bush nearby revealed the site of a graveyard of a type associated with the Arab towns of Somaliland and clearly not Somali, in which the graves were outlined with thin stones set on edge. Though the cemetery was all overgrown it was possible to pick up several pieces of carved stones (see FIGURE).

After much inquiry from guides I elicited the fact that there was an ancient building at Hore, seven miles distant, through the pass and down the caravan track towards Zeila. I visited it at the first opportunity and found the remains of a square building with walls about 10 feet high, well built with an arch across the centre to support the roof. It



OUTLINE OF BROKEN CARVED STONE  
AT HERIRAT, SOMALILAND (½)

was impossible to decide in one short visit whether the building was a dwelling house or a tomb. It was evident that there had been windows about 2-foot square, and I picked up the corner of a carved stone lattice-work window. Round the building were a number of graves and some six were conspicuous by the large blocks of dressed stone of which they were made, and on one of these, depicted on PLATE VIII, there was a small stone object about 15 inches high. It is impossible to say for how long it had been there or for what it was meant to represent, but it had clearly been carved with a certain suggestion of phallicism. The stone trough in which it rests is one solid piece of corallian rock, while the outer border of the grave consists of four slabs set on end. Outside, and in line with the centre of the grave, there stands an upright round pillar about 4 feet high.

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It is difficult to associate these two isolated groups of stone carvings with any culture. No stone work or carving is carried on today by the Somalis, who are essentially nomads. The Esa tribes, in whose country the sites lie, have many of their Mohammedan customs tinged with paganism<sup>1</sup> and they are also excellent carvers of utensils in wood on which they employ Coptic interlacing patterns freely; but although I have spent many months camping and trekking about their country I have never seen any attempt made to carve or dress stone.

In none of the graveyards of the Arab towns of Somaliland have any carved stone monuments resembling those above come to light, but in some of the sites of towns there have been found pieces of platters and bowls fashioned in steatite.

Monuments with a similar phallic motive, but on a much larger scale, have been recorded from Sidamo and other Galla provinces of southern Ethiopia.<sup>2</sup> It is possible that a connexion exists between the symbol stones of British Somaliland and those from southern Ethiopia; indeed history lends support to the possibility and relates that, following on the fall of the Mohammedan kingdoms, including Harar, Zeila, etc., in 1575, parts of them fell into the hands of the Galla.<sup>3</sup> No details are available to show the extent of their occupation but it is within the bounds of possibility that these invaders left traces of their cult at Herirat and Hore. The pagan customs which characterize the Esa, and to a lesser extent the Gadabursi, who are their eastern neighbours, are no doubt a heritage from the Galla.

The discovery of obsidian flakes and cores on the sites of some of the ruined Arab towns, which lie some 40 miles east of Herirat, and a similar find by Captain R. H. R. Taylor at Aghresalam in Sidamo in 1936 form a further connecting link between Somaliland and southern Ethiopia.

A. T. CURLE.

## WHITE QUARTZ PEBBLES AS FUNERARY OFFERINGS

(PLATE IX)

The custom common among primitive peoples, of placing white stones and sea-shells as funerary offerings was commented on in the

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<sup>1</sup> J. Parkinson, 'Customs in Western British Somaliland', *Journal Royal African Soc.*, July 1936.

<sup>2</sup> Azais et Chambard. *Cinq années de recherches archéologiques en Ethiopie*, part III, chap. II.

<sup>3</sup> Ahmad Ibn Al-Kadir, *Historie de la Conquête de l'Abyssinie*, XVI siècle, p. 28. (Publications de l'École supérieure des lettres d'Alger),

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pages of *ANTIQUITY* nearly ten years ago,<sup>1</sup> when in addition to examples of Bronze and Early Iron Age date in Britain, instances were cited of the continuance of the custom in Baluchistan and, nearer home, on the west coast of Scotland. The photographs on *PLATE IX* show two additional examples. No. 1 shows a small baetyl of black igneous rock which was found buried in the sand near the church of Tronoan in Finistère, and surrounded by white quartz pebbles.<sup>2</sup> The whole group has been reconstructed in the museum of Penmarc'h, in Finistère, where the photograph was taken this year. There is no actual evidence of dating, but it and similar 'lechs' in Brittany are assigned to the Iron Age.<sup>3</sup>

The second photograph was taken in 1928 in the churchyard of Llanddaniel-Fab in Anglesey, and shows the best example of several graves which were adorned with 'offerings' of white quartz pebbles and sea shells.<sup>4</sup> It seems that we must see in these modern examples the continuance of a practice which in Anglesey itself is well attested in the megalithic tombs of that island.<sup>5</sup>

STUART PIGGOTT.

### CHILEAN BAKING-OVEN (*PLATE X*)

Mrs FRANCES ROPER writes :—Baking ovens are in common use among the natives of the Andean regions of Chile. We saw quite a number during our tours round, and they struck us as so similar to those we had seen during the excavations at Maiden Castle that we secured some photographs, as this specimen was a particularly suitable subject. I am standing by the oven, in order to give an idea of the size, which is approximately 4 ft. high and 4 ft. diameter outside. There is a similar opening on the other side of the oven, which is very neatly finished inside and out, the interior being whitewashed. The walls and dome are roughly 12 to 15 inches in thickness; and the raised base under the oven is built up of rough rubble and adobe. As far as we could make out the fire is lighted inside the oven, which heats the thick walls and causes them to retain sufficient heat for cooking, after the manner of the old fashioned bread-ovens in England. The whole structure is of adobe reinforced by a few stones round the two

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<sup>1</sup> *ANTIQUITY* 1928, II, 90, 358.

<sup>2</sup> Le Pontois, *Le Finistère Préhistorique* (1929), 263.

<sup>3</sup> Octobon in *Rev. Anthropol.* 1931, XLI, 387; cf. also *Ant. Journ.* 1934, XIV, 59 and refs.

<sup>4</sup> Cf. *Bull. Board Celtic Studies*, 1935, VIII, 87-90.

<sup>5</sup> At Bryn Celli Ddu (*Arch.* LXXX, 209) and Pant-y-saer (*Arch. Camb.* LXXXVIII, 208 ff), though curiously enough, not at Bryn-yr-hen-bobl, *Arch.* LXXXV, 274.

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doorways ; it is apparently shaped and smoothed entirely by hand, and, as is shown in the photograph (PLATE X), is of most symmetrical outline.

The photograph was taken during an expedition from Santiago, in the region of Angostura, at an altitude of about 2,000 feet.

### EXCAVATIONS AT VOUNOUS, CYPRUS (PLATE XI)

An expedition sponsored by the British School at Athens is continuing the investigations inaugurated by the Cyprus Museum and the Louvre at the Early Bronze Age necropolis at Vounous, about 6 miles East of Kyrenia, on the north coast of Cyprus.

Work has been concentrated on two portions of the site :—A, the extreme eastern fringe, about 500 yards from the area previously explored (Schaeffer : *Missions en Chypre*, 1932–35) ; B, on the south-west edge of the area excavated by the Louvre.

On site A, which proved to be of great interest, 25 tombs were opened, all characterized by the use of pottery with a marked stump base, and offering a less developed series of shapes than the usual E.C. types. A large proportion of the graves contained single burials, a factor of some importance for the eventual arrangement of the internal chronology of early Cypriot pottery. The usual attitude of burial was a crouched position on the left side, most commonly with the head to the chamber entrance, though no fixed rule of orientation was observed.

Among the finer pieces of pottery is a deep bowl, with a set of three incised figures, possibly representing masked dancers.

The 27 tombs opened on site B, while archaeologically of less importance, produced a quantity of the better known early Cypriot shapes and fabrics, offering several points of contrast to the finds from site A. All these tombs had been in use over a comparatively long period.

It is hoped that in the autumn it will be possible to excavate a series of tombs connecting areas A and B, and to continue the search for the settlement.

JAMES R. STEWART

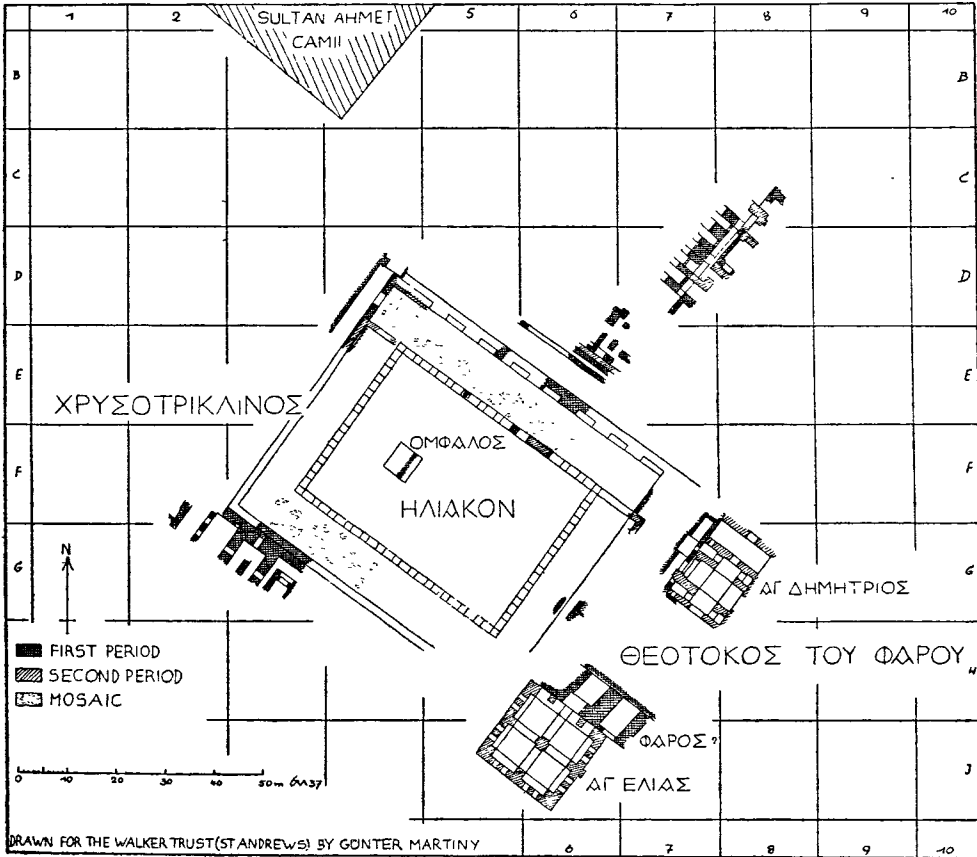
### BYZANTIUM (PLAN)

Excavations have been carried out in the summers of 1935 and 1936 in the Sacred Palace of Byzantium, under the direction of Professor Baxter. The Walker Trust of St. Andrews University has undertaken these excavations, which are still in progress, in the hopes of establishing the topography of the Palace.

The site chosen lies southeast of the Sultan Ahmet Mosque. The

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most important result has been the finding of a colonnade 66.6 metres long and 56.6 broad surrounding a courtyard. There must have been thirteen columns in the long sides, which ran northwest to southeast; and ten in the short. The floor of the long sides of the colonnade was



THE SACRED PALACE OF BYZANTIUM

9.2 metres wide, and opposite each alternate inter-columnation there was a marble seat set in a recess.

There were two periods in the history of the colonnade, the second of which ended in the destruction of the building by fire. The beginning of this period is marked by the laying of a marble pavement, and an alteration of the stylobate. It was presumably at this time that the

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northwest side became incorporated in the courtyard. The marble pavement replaced an already damaged mosaic floor, portions of which have so far been uncovered on two of the four sides.

Below this mosaic there were some seven metres of made earth dumped at a time prior to the planning of the stylobate of the colonnade. The mosaic has a wide border of acanthus leaves seen in profile, with birds, flowers and fruit, bounded by a border of a ribbon pattern. The main panel contains individual scenes, standing freely or on coulisses, and each on a separate scale, of men and animals in scenes of country life and hunting, among trees and buildings. The white background is a pattern of fans. In style and technique it is comparable to contemporary mosaics, notably those at Yakto, with which it has many features in common. The workmanship, however, distinguishes it from all contemporary mosaic work. The fan ground is regular throughout, the scenes are not crowded, the tesserae are small and closely laid. Further, the repertoire is large, and the individual scenes and figures display a high artistic sense and a full control of the medium. An inscription has not yet been found; but internal and external evidence suggest a date in the first quarter of the fifth century.

Northeast of the courtyard a large trench has been excavated, 58 metres long and 9 metres broad. This has revealed part of the substructures of what was probably a small church, in the narthex of which there were numerous burials. This church adjoined a large building whose shape and size are as yet unknown.

Quantities of potsherds were found in the area, and with the help of stratigraphy and coins it is possible to trace the development of the glazed wares. What may be called a Late Isaurian phase can be clearly distinguished from those of the Macedonian period. Traces of earlier Isaurian ware have also been found. About the beginning of the Comnene period there appeared an entirely new class of white-bodied pottery, which frequently has painted designs. It replaces almost completely the older fabric. A few examples of red-bodied ware, some with graffito decoration, also occur at this period.

On the southeast side of the courtyard are two substructures that have long been accessible; one of which is part of a church. Between them is a building of which only the outer walls are known. This building is bisected by the long axis of the courtyard. It may be suggested that these three substructures are those of the three churches of Our Lady of the Pharos, St. Demetrius and St. Elias. The courtyard may then be identified with the Heliakon. Some brick masonry which



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may be part of a Pedestal would then represent the Omphalos with the Porphyry Stone, which stood in the centre. Further excavations on the northwest side of the courtyard reveal the Chrysotriclinos. G. BRETT.

### ORIGIN OF OUR ALPHABET (PLATE XII)

With the kind permission of the EDITOR of THE TIMES, and of DR ALAN H. GARDINER, we are able to reprint the important letter by the latter which was published in THE TIMES of 16 July. We are also indebted to MR J. L. STARKEY for the illustration of the bronze dagger on plate XII.

#### TO THE EDITOR OF THE TIMES

' On a number of different occasions you have opened your columns to new information in connexion with the origin of our alphabet. In this respect the important excavations conducted at Tell el-Duweir by Mr J. L. Starkey for the Wellcome-Marston Archaeological Research Expedition have been particularly prolific. On June 9, 1934, you reproduced the inscription on a ewer dating from about the time of Rameses II (thirteenth century B.C.) and this, as I pointed out in a letter published in *The Times* a few days later, drew special significance from the fact that the characters obviously stood midway between the much-discussed semi-hieroglyphic Sinai script and the later Phoenician alphabet, just as Tell el-Duweir itself, the ancient Lachish on the borders of Philistia, lies geographically midway between the peninsula of Sinai and the coast towns of Phoenicia. On June 24, 1936, you depicted a similar inscription of about the same date, and on October 17 of the same year the late Professor Langdon attempted the decipherment of yet a third bowl inscription of like character. In spite of all difficulties in interpretation—and it must be frankly admitted that no certain meanings have been derived from these brief texts—Mr Starkey's inscriptions all tell the same clear tale. They exhibit what is probably the oldest indigenous Palestinian script shorn of its purely pictorial elements, and thus well on the way to becoming the non-pictorial writing familiar from the early Phoenician and Aramaic alphabets, as well as the oldest forms of Greek.

A further discovery from the same site, made public by Sir Charles Marston in January, goes far towards corroborating this conclusion, while, as seems inevitable in archaeological discoveries, raising new problems of its own. The cleaning of a bronze dagger of undoubted Hyksos date (about 1700-1555 B.C.) brought to light a vertical inscription of four signs [see PLATE XII], of which the second, a clear man's head,

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evidently corresponds to the same sign in the Sinai script, where on the strength (1) of the letter-name *rēsh*, signifying "head", and (2) of the rough resemblance of the Phoenician letter, it had been identified by me as the prototype of our own R. The third sign appears to be the snake common in the Sinai texts and possessing a fairly clear descendant on the above-mentioned ewer; this had been identified on similar grounds as the original N. The first and last signs on the dagger are much more obscure. A desperate conjecture might equate the former with the "door" D or with the "noose" that some (*e.g.*, Professor Butin) take to be S, the Hebrew *šādē*; for the latter the only conceivable identification would be the "cross" or "mark" T, although both the earlier and the later forms of this have elsewhere one bar, not two. What the word DRNT or SRNT might mean I cannot guess; an uncompounded proper name in Semitic would probably consist of three radicals only.

The importance of the new find lies partly in its providing a link between the Sinai inscriptions and those previously found at Tell el-Duweir, and partly in the inference to be drawn from the finding of unmistakably pictorial letter-shapes as late as the Hyksos period. Mr Starkey has shown me that there can be no doubt as to the date; the dagger was found in an untouched tomb-group with two characteristically Hyksos scarabs, good pottery of the same period, as well as other objects. Now if the generally accepted theory be right, we cannot here be far removed from the actual invention of the alphabet; for the whole of the history points to a rapid degradation from pictorial to linear and non-pictorial forms. Hence the late Professor Sethe's hypothesis that the Sinai inscriptions belong to the Hyksos period may perhaps become preferable to my own view assigning them to the end of the Twelfth Dynasty.

It has to be admitted that the appearance on the dagger of two signs that cannot readily be identified with equivalents in the Sinai script presents a new obstacle in the way of accepting the latter as the prototype of the Phoenician alphabet; on the other hand the two signs that can be so identified are no less strong confirmation of that theory, to which an increasing number of scholars are now leaning. I am personally convinced that, though much remains to be explained, the inscriptions from Sinai and Tell el-Duweir do really contain the key to the origin of our alphabet, and that no equally plausible case can be made out for its origin from the cryptic and very ancient hieroglyphic writings that have of recent years been discovered at Byblos.'

## Reviews

THE FOUNDATIONS OF ROMAN ITALY. By JOSHUA WHATMOUGH.  
*Methuen. pp. 413, 11 plates, 8 maps, and 148 text-illustrations. 25s.*

'Foundations of Roman Italy' is a fine stalwart title. It promises a great deal and it implies much that is new. The reviewer therefore may venture on a few words of independent introduction in order to explain the exact functions of a book which falls outside the more usual classifications. For though it is included in a series entitled 'archaeological handbooks' it contains much besides archaeology, and it is precisely the non-archaeological content which is strikingly new and original.

Be it said then that Roman Italy, as the historian knows it, was the unexpected and almost unwanted child of the Roman Republic, and only came to maturity after several centuries of the most haphazard upbringing. It was scarcely full-grown at the beginning of the first century B.C., and for some time after the death of Augustus several regions still maintained a good deal of their individual character, no less than the use of their peculiar languages or dialects. For it must always be remembered that ancient Italy was a patchwork of many races and many cultures, some of which bore no relationship whatsoever to the forceful nation which unified them, while others were only connected with it by the distant identity of an exceedingly remote parentage. It was long before the mere process of colonizing the peninsula was complete. From early neolithic times to the seventh century B.C. there was seldom any long cessation in the movements of greater or smaller bodies of newcomers. Even when a partial equilibrium had at last been established it was more than once disturbed, possibly by raids from the Balkans and certainly by large incursions of Celtic tribes from beyond the Alps.

We learn nothing of the origins, customs, languages or civilization of these numerous peoples from Roman writers, who indeed regarded them chiefly as mischievous obstructions to the extension of Roman law and order. A few references in Greek historians are valuable but they are very scanty and brief, while the writers of Magna Graecia who must have possessed much valuable information have perished with all their works. By the time of the standard geographers only a few vague and confused traditions had survived. It will therefore always be impossible to construct any sort of intelligent account of pre-Roman history from literary sources.

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In recent years however archaeology has accumulated an amount of material which is quite sufficient to afford a fairly complete view of northern and central Italy, and to give some idea of the pre-Roman conditions even in the south. Now comes the opportunity for Professor Whatmough, who has command of a source of information which is comparatively new—the study and analysis of the ancient languages. Well-known in England before he migrated to Harvard he recently produced a great work on the ‘*Prae-Italic Dialects*’, which together with some earlier studies, forms the background of much of his reasoning in the present work. The skill with which he uses this instrument, and the dexterity with which he weaves the new material into the results already obtained by archaeology, give this volume its peculiar character and interest.

It opens with four introductory chapters of general range. The reviewer is especially impressed with the excellence of the geographic treatment in chapter 2, which is based on the best work of modern geographers, from the classic ‘*Landeskunde*’ of Nissen to the ‘*Mediterranean Region*’ of the incomparable Ellen Semple. In accordance with present trends much emphasis is laid upon climatic theories such as those of Brooks. These chapters are followed by a regional survey of the entire country, including Corsica and Sardinia as well as Sicily. Of the archaeological epitome, which forms one of the two principal themes it need only be said that it has been done most conscientiously and well. Every major work has been studied with the minutest care, while many writings of minor content have obviously been consulted and are duly listed in the bibliography attached to each chapter. Numerous cuts and figures distributed through the text both illustrate the subject and lighten the reading. There must be many who will be glad to have within the covers of a single light volume this short but trustworthy résumé ranging from the Palaeolithic to the Hellenistic period.

*Pari passu* with the archaeological summary runs the discussion of linguistic evidence, diversified by occasional references to literary tradition and to any hints that can be drawn from customs and religion. It is impossible to cover this large field in a review, but three striking cases may be selected for notice. It is clear that for the solution of the Etruscan question the aid of philology is indispensable. Our author’s treatment of this exceedingly difficult problem is distinguished at once by its sobriety and its unhesitating decision. Like all Etruscologists he has had to endure much nonsense, but this does not deter him from following a well-marked if thorny track. He is of course far too wise to waste any time on chimerical systems of translation. Pending the discovery of a bilingual, which must certainly happen in due time, some quite unquestionable results can be obtained by sheer philological analysis on a received scientific basis. I quote as examples three striking pronouncements—‘Nothing is so

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certain as that the Etruscan language . . . is in no sense Indo-European'— 'Evidence is accumulating that already suggests very clearly what the final conclusion will be, namely that the Etruscan language belongs to an early stratum of Mediterranean speech now known to us rather imperfectly in Asia Minor and various places in the Aegean'— 'There is scarcely room any longer to doubt the Anatolian affinities of Etruscan'. Prof. Whatmough altogether rejects the view, still held by one or two Italian scholars, that the Etruscans were an indigenous people in Italy. But he makes the interesting suggestion that an early stratum of pre-Aryan language may have extended as far as Italy, in which case the Etruscan invaders when they landed may possibly have found the country inhabited by a people whose speech was akin to their own. Reviewing the combined evidence he accepts what is now the most orthodox theory which regards the Etruscan invasion as that of a small number of men, qualified by their superior gifts to become overlords, coming across the Aegean in single ships or small convoys, possibly at intervals of some years, beginning in the ninth century.

In contrast with the Etruscan invasion it is interesting to read that the numerous inroads and settlements of Gauls in northern and northeastern Italy had little or no permanent effect. These intruders were rapidly absorbed and there is scarcely any trace of them left by the first century B.C., though several cemeteries with La Tène objects attest the fact of their arrival. The Gauls were responsible only for enlarging the Latin vocabulary with a certain number of words, chiefly descriptive of riding, driving, dress, and equipment. The deep-lying affinities long recognized between Latin and Celtic are due not to these late invasions but to a much older contact in the original home of all these peoples outside Italy itself.

Near Pesaro, not far from the *ager gallicus*, a group of inscriptions has been found which dates from long before the Gaulish invasions. They are of the seventh century, and it is still an unsolved question whether they are Illyrian or of native parentage. Undoubtedly Illyrian however is a group of inscriptions from the neighbouring territory of Picenum, where archaeology also detects Balkan influences. This Illyrian element all down the Adriatic coast is in general indicated far more clearly by philology than by archaeology, partly no doubt because Illyria itself is almost unexplored. Philology plainly shows that the Veneti, as Herodotus actually stated, were of Illyrian origin and that the Messapic and Iapygian dialects of southeastern Italy were also Illyrian. It is possible even that ancient Sicel may belong to the same group. The constant interaction of the two sides of the Adriatic is an important fact, now clearly established.

Classical scholars may find a more congenial and familiar atmosphere in the

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chapter dealing with Oscans, Sabellians, Umbrians, and those Italic tribes which are more nearly related by speech and customs to the Romans. These subjects are treated with the same thoroughness and insight. Enough has now been said to show that this book contains the long desired Prolegomena to Roman history. As it is remarkably easy and pleasant to read it should be assured of a wide popularity.

DAVID RANDALL-MACIVER.

MEDIEVAL SPANISH ENAMELS and their relation to the origin and development of Copper Champlevé Enamels of the twelfth and thirteenth centuries. By W. L. HILDBURGH. *Oxford University Press*, 1936. pp. xiv, 146, and 24 plates. 16s.

This book is one of the most important works on the minor arts of western Europe in the early Middle Ages that has appeared in recent years. Its target, though not its main content, is that extensive body of material with which most of us have some general acquaintance, the early copper champlevé enamels of the kind that we are accustomed to label without any hesitation as 'Limoges' work; for it is Dr Hildburgh's purpose to show that this customary attribution, while not invariably correct, is in many important instances wrong and based on a serious misconception of the history of the enamel-craft in Europe. His contention is that the medieval Limousin enamelling industry cannot be shown to have had its origin in south-central France, a province in which not only the requisite technical experience is lacking, but also the necessary supply of copper; whereas, on the contrary, in Spain the history of enamelling provides precisely that background to the medieval industry which is needed to account for the sudden development in western Europe of the champlevé technique at the beginning of the 12th century, not only at Limoges but even in the north as well. Accordingly, it is the full story of the Spanish enamels that Dr Hildburgh sets forth in this book, secure in the knowledge that if his account of them be eventually endorsed, the Limoges bubble is thereby well and truly pricked, to say nothing of the new light that is thrown on the general history of the enamel-craft.

The first point made is that it is no longer possible to pretend that the 12th century copper champlevé enamels of Spain were imported pieces or the work of journeying Limousin craftsmen; here the evidence of the very important 'Silos' group of enamels is overwhelmingly in favour of a purely Spanish origin for the pieces concerned; and, this granted, it can be shown that much that is typical of early 'Limoges' work in our museums—which we have accustomed ourselves to regard as characteristically French—is really a Spanish development, for instance the 'vermiculé' backgrounds that are here shown to be engraved imitations of designs originally executed in filigree, and also the

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familiar floral scroll. There was a vigorous Spanish school, in fact, capable of setting a fashion for the *champlevé* enamels that was afterwards followed at Limoges. But that Spanish work also influenced the northern craftsmen and was ultimately responsible for the brilliant enamels of the Mosan and Rhenish schools, is a claim that Dr Hildburgh is wise enough to put in its mildest form, asking us simply to consider the probability that copper *champlevé* enamels, made in Spain and brought to the north by pilgrims and traders, provided the necessary inspiration for the striking change in the appearance of northern metalwork that takes place when Eilbertus used for the first time backgrounds of coloured enamels in those 'sunk-field' areas that had been left empty in the earlier work of Roger of Helmershausen; for it is agreed that nothing more would be required than Spanish example, inasmuch as the northern craftsmen were already highly skilled.

But how comes it that Spain, outstripping France and the north, was thus ahead with the *rediscovery* of the copper-*champlevé* technique?—for neither Dr Hildburgh nor anyone else supposes that the medieval work is a direct continuation of the provincial Roman schools. Here Dr Hildburgh would answer, if I understand him aright, that inasmuch as gold *cloisonné* enamel (to say nothing of a gold *cloisonné* in sunk-field that imitates *champlevé*) can be shown to have been made in Spain in the 9th century and later, we start with the enamel-craft as established and have only to look for reasons for a change-over to the *carver's* technique represented by *champlevé* proper and for the use of the locally abundant copper. As to this last point, we are asked to consider the impoverishment that resulted from the Reconquest, and the inevitable demand that sumptuous ecclesiastical furniture should be made in something less costly than gold, so that the extensive use of gilt copper is natural enough; and as for the requisite *carver's* technique, it was already commonly employed in Spain, both for *niello*-work and for ivories.

On documentary evidence it can be shown that copper *champlevé* enamelling was made in Spain as early as the first decade of the 12th century, and if Spain thus has a priority in this craft, we have only to imagine the inevitable transport of some of the easily portable Spanish works to France in order to understand how it came about that Limoges, stationed on one of the great diagonal high-roads across France, became a natural centre for the general distribution of these wares from Spain. Dr Hildburgh does not deny that there was in course of time a 'Limoges' industry; but it was Spanish-born and was cradled in the strangers' quarter of the city; and the centre-point of his case is that the most famous and the earliest works at present believed to be Limousin are in reality Spanish. Thus he claims for Spain several pieces of outstanding importance, for instance the celebrated late 12th century Geoffrey Plantagenet plaque at

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Le Mans and the early 13th century ciborium of Alpais in the Louvre ; for Master Alpais, though he may have lived at Limoges, is quite likely to have been a Spanish oriental, Al-Faiz. Indeed the markedly oriental character of some of the Limoges pieces, as exemplified in the use of imitation Arabic characters and in colour-styles, is very easily accounted for if the Spanish source of the work be admitted.

The type of Limoges enamel that we know best is the kind that was produced in abundant quantity at the end of the 12th century and in the first half of the 13th. It is no part of Dr Hildburgh's case to deny that much of this work was made at Limoges, and he is at pains to emphasize the great difficulty of distinguishing between the French work and the Spanish at this period. But though the growth of the Limoges school may have harmed the Spanish industry at such places as Silos, it is not likely that the schools which were responsible for the existence of the Limoges work-shops should have come to an abrupt end, and Dr Hildburgh is anxious to prove that many magnificent enamels were still being made in Spain in the early 13th century. He examines accordingly a number of notable pieces, chief among them the San Miguel retable in Navarre, that he declares to be Spanish, supporting his views with as great a wealth of detailed argument as he had used in defence of the Spanish origin of the earlier pieces.

I should like to be one of the first to say that I think Dr Hildburgh has been successful in proving the existence of an important enamelling-industry in early medieval Spain, an industry of the requisite calibre to have had an effect on the crafts of other countries. The existence of this is in itself a serious challenge to what the author calls the 'Limousin hypothesis', and it is obvious that in future there will have to be much circumspection before we embark on our accustomed 'Limoges' attributions : but I do not consider that Dr Hildburgh has completely discredited Rupin's case, though he has shown that it is much weaker than is commonly imagined.

T. D. KENDRICK.

**NORDISK KULTUR (Del 16 : HANDEL OG SAMFERDSEL).** Published by the Clara Lachmanns Fund. *Oslo: Aschehoug & Co., 1934. pp. 360, with text-figures.*

Part 16 of the collective work on Northern Culture, supported by the Clara Lachmanns Fund, deals with trade and communication and is divided into two parts. Part A covers prehistoric times and is edited by Dr Brønsted of Copenhagen, while part B, edited by Dr Schück of Stockholm, deals with the medieval period.

Part A includes chapters on prehistoric trade in each of the four Scandinavian countries. They are written by leading prehistorians, but in rather popular



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style and the illustrations are mostly well-known. The bibliographical references will, on the other hand, be found useful to the reader with more specialized interests. Much the same themes recur in each of these chapters, *e.g.*, the diffusion of south Scandinavian flint and of various types of stone, such as the famous red Ångermanland slate, the amber trade, metal types of the Bronze Age, and so on up to the Viking period. The part is concluded by a chapter on prehistoric ships by Shetelig, who makes use of rock-engravings but depends naturally in the main upon the actual remains of ships in which Scandinavia has proved so rich.

Part B is mainly historical in treatment, but includes many features of particular interest to archaeologists, notably the four chapters on roads in Denmark, Norway, Sweden and Finland respectively: in each case these accounts are accompanied by maps. Finally one might mention the chapter on land-transport by Gosta Berg which covers wheeled vehicles, various types of sleds, as well as skates. Berg mentions some of the very interesting discoveries of sledge runners and skates made in Swedish and Finnish bogs; in many cases these can be dated by pollen analysis, several finds being assignable to Neolithic times.

J. G. D. CLARK.

**BIBLE AND SPADE: an Introduction to Biblical Archaeology.** By Rev. STEPHEN L. CAIGER. *Oxford University Press*, 1936. pp. 218, and 24 illustrations. 5s net.

This book is a short summary of recent results of excavation in the Near East and their bearing on the narratives of the Old Testament. It will be very useful to teachers and students, since it is accurate, up to date, and, on the whole, impartial. The author is catholic in his quotations from the vast body of literature about the relation of archaeology to the Bible, and, in a book which is intended for the use of teachers, one could wish that a little more discrimination had been exercised in the choice of 'authorities'. Writers of an earlier date, whose theories are no longer accepted by archaeologists; authors of popular accounts of modern excavational results; propounders of doubtful hypotheses generally rejected by the main body of Oriental scholars; are found side by side with archaeologists and Semitic scholars of first-hand knowledge and unquestioned authority. This may be misleading to those who are not in a position to distinguish between what is authoritative and what is not.

But when this has been said, and apart from a few minor inaccuracies and omissions, the book deserves a welcome as a most useful compendium of modern knowledge of the whole field of archaeology as it relates to the Bible.

One or two corrections should be made in any subsequent edition. The identification of Amraphel with Hammurabi is now regarded as extremely

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doubtful, while the equation of Ellasar with Larsa is definitely rejected. The identification of Tidal no longer rests on the doubtful evidence of the Spartoli Tablets, but Böhl's analysis of the new Hittite material points to Tudhaliash III as the figure corresponding to the Tidal of Gen. 14. The whole question of the date of Abraham's entry into Canaan needs revising in the light of Speiser's important monograph *Ethnic Movements in the Near East in the 2nd Millennium B.C.*

A less important point concerns the credit for the decipherment of the script of the Ras Shamra Tablets. Bauer, Dhorme, and Virolleaud, working independently, reached solutions of the problem in its essentials about the same time. T. H. Gaster, who has done very valuable work in the translation and interpretation of the texts, cannot be credited with the decipherment of the script.

The remarks on p. 92 concerning the comparison between the Code of Hammurabi and Hebrew legislation require some qualification. It is not clear whether the author intends to compare early Hebrew laws, such as those contained in the Book of the Covenant, or the later Deuteronomic and Priestly Codes, with the Babylonian. In the Hebrew regulations relating to the liberation of slaves, and to the curious case of the goring ox, the Babylonian code is distinctly more lenient than the Hebrew.

The illustrations are good, though we should have welcomed a greater number of new ones, of which so many are now available. It is a little surprising not to find the oldest and most important periodical in English dealing with Palestinian archaeology, the *Quarterly Statement of the Palestine Exploration Fund*, in the list of periodicals on p. 205, the more so, since the photograph of Mr Crowfoot's excavation of Samaria has been taken from that journal.

S. H. HOOKE.

THE ENGLISH CASTLE. By HUGH BRAUN with a foreword by HILAIRE BELLOC. *B. T. Batsford*, 1936. *pp.* VIII, 120, 120 *photographs, with text-figures.* 7s 6d.

A commendable feature of this volume is the number and high quality of its illustrations. These of themselves tell much of the story more graphically than any literary exposition. Incidentally they may also prompt some questions which an unsophisticated enquirer might well ask—why, for example, an obvious tower within an obvious wall on the mound at Launceston (p. 45) should have the puzzling legend below: 'a round Tower-Keep within a Shell-Keep'. He will scarcely be enlightened by the information in the text that 'keep' is a word 'of late origin' applied to a tower (p. 30), so that 'tower-keep' seems tautologous; while 'shell-keep' is the stone wall round the top of a mound

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and so neither a 'shell' nor, in the sense given, a 'keep'. It is not that 'a stone walled motte has come to be called by archaeologists a shell-keep' (p. 51), but that they, knowing better, have chosen to continue an admitted misconception on the part of G. T. Clark.

This case, however, is but part of the general confusion imposed, in the judgment of the present writer, on the study of castles by the use of the term 'keep', unknown to medieval builders, chroniclers, or 'castellans' but strangely indispensable for modern writers. Mr Braun can certainly claim that, in using it, he is on the side of the 'archaeologists'. Whether his personal applications of it will be approved is another matter.

'It is thought', he writes, 'that the reason why so few domestic buildings were erected prior to the year 1000 was the popular belief that the world would come to an end with the first millennium' (p. 28). Anyone encumbered with that 'thought' should get rid of it. He need not then follow our author in concluding that thereafter 'many relieved castellans were turning their attention to rebuilding their timber castles in stone', when 'it seems to have occurred to them that while they were doing so they might just as well make the houses themselves defensible', whereupon they set about to 'modify' the original timber hall 'into something resembling a tower'. So Mr Braun passes on to his categories of 'hall-keep', 'tower-keep', 'chamber-keep' (p. 44), Chepstow as 'a sort of keep' (p. 76), a hall at Clare Castle 'which cannot be classed as a keep' but 'is nevertheless planned on the same principles as one' (p. 79) and other refinements.

Chronologically Mr Braun lays out three main periods for his buildings. The twelfth century was the age of great towers, 'stone keeps . . . built as residences and not as strictly military structures' (pp. 72-3). In the latter half of the century, however, siege engines made necessary the raising in height of the enclosing walls, wherefore the lofty tower could be abandoned for the more comfortable courtyard quarters of the hall, etc. (pp. 69, 76 n). Yet Dover Castle 'shows combined the two features of the tower-keep and the towered curtain walls which ousted the great towers; in that case, curiously enough, both erected at the same time' (p. 48). More curious still, at Porchester the high curtains necessitated 'the raising of the keep' (p. 77). By the end of the thirteenth century 'practically no new castles were being founded', for one reason because 'the borders of Wales and Scotland had been secured . . . and no complete conquest of these countries was now particularly desired' (p. 87). Alas! it was just at this time that the desire for a conquest of Scotland took shape. In the following century 'the fashionable craze was Chivalry', and 'nothing would suit such marvellous persons as these fourteenth century lords and ladies but that they must live in castles' (p. 102). 'At Hurstmonceaux we can

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detect the last desperate effort ' in this line on the part of landowners ' who had been reading too much Malory ' (p. 108). Previously we had been told that it ' was built by someone who had done well out of Agincourt ' (p. 105). But Hurstmonceaux was begun about 1446, thirty years after that battle, and Malory's book was not finished till 1470 and not printed till 1485.

The truth is that Mr Braun has constructed a framework into which his material refuses to fit. To hold the scheme together it is knotted up with such expressions as ' somewhat anachronistic copies ' (p. 37), ' had a relapse ' (p. 46), ' consoling themselves with shell-keeps ' (p. 51), ' could not resist temptation ' (p. 56), ' a lingering desire for a great tower ' (p. 57), and so on. The suggestion is that the general treatment has been on the wrong lines. At the same time he does indicate factors—such as the parallel drawn between the castle in ' feudal society ' and the ' country house of the eighteenth century—the outward symbol of squirearchy ' (p. 101)—which could have been developed to better results. Much apparent fortification was but architectural design. And fortification itself was less logical than a scientific age would like to make out.

Apart from these general considerations Mr Braun supplies in his lively chapters a goodly amount of useful information for those who do not know. But he should have avoided references to ' triforium lighting '. The triforium was the ' blind-storey ' ; lighting came from the ' clear-storey ' above.

W. MACKAY MACKENZIE.

MEXICO FROM THE EARLIEST TIMES TO THE CONQUEST. By THOMAS GANN. *Lovat Dickson and Thompson*, 1936. pp. 206, and plates. 6s.

No book has been published in English giving the general public the latest ideas of specialists about the early history of Mexico since T. A. Joyce's learned volume on *Mexican Archaeology* (now unfortunately out of print), and Spinden's *Ancient Civilizations of Mexico*, which though short is replete with facts and observations. All therefore who are interested in such matters, and even militant Americanists, will applaud the happy enterprise of the publisher for including in his series about famous archaeological regions this excellent work of Dr Thomas Gann, lecturer in the archaeology of Central America at Liverpool University and leader of the British Museum's archaeological expedition to Pusilha in British Honduras. He is the author of several attractive works comprising an archaeologist's notes in Central America.

The book under review is a good summary of what ancient chroniclers and modern archaeologists have told us. It is quite up-to-date and if only for that would be welcomed by specialists. But we chiefly value it for its extreme clearness and moderation in the selection of details which however in no way

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hamper the progress of the narrative. Its main portion is devoted to the Aztecs. Being nearest to our own times and having been in direct and close contact with their conquerors, it is natural that it should be about them and their civilization that we have the fullest accounts. Dr Gann describes them with special care and thoroughness. On the other hand he does not fail to assign to each of the other peoples of Mexico the important role which belongs to them in a culture which is rapidly proving, from its remains, to have been one of the most remarkable in America and even in the world, since the time that our thirst for knowledge has been able to tear itself from the exclusive study of white civilizations.

The only criticism we have to make of a little book so rich in precise and serious observations, is that the illustrations, interesting though they are in themselves, are but a very inadequate complement of Dr Gann's necessarily brief descriptions.

H. LAVACHERY.

**INDIES ADVENTURE :** the Amazing Career of Afonso de Albuquerque, Captain-General and Governor of India (1509-1515). By ELAINE SANCEAU. *Blackie*, 1936. pp. XII, 308 with 11 plates. 12s 6d.

Historical biographers have done less than justice to Afonso de Albuquerque, who used princes as his pawns and spread himself across the map of Asia. This sympathetic study is the most extended survey that has hitherto appeared in English of the greatest of all the Portuguese heroes who served in India.

Little is known of his early life, and Miss Sanceau rapidly leads to the 'amazing career' of the years 1506-1515, investing her narrative with a richness of description in character, incident and background which is as charmingly vivid as historically accurate and indicative of her patient research.

Regardless of personal ambition, Albuquerque planned, fought, laboured and administered for nine years, to lay the foundations of a Portuguese Empire in the East. A consuming energy led him to attempt undertakings which his captains denounced as foolhardy and needless, but he never relinquished a project on which he had set his mind, and the difficulties with which he had to contend stimulated rather than discouraged him. Throughout the tenure of his Governorship he was harassed by intrigues engineered against him by his subordinates, and especially by the failure of the mother country to send him adequate support in arms and men. In 1512 he had less than 1,300 men to protect the fortresses on the Indian coast and at Malacca, and of these not 300 were fully armed; his vessels were old and rotting, and his flagship sank beneath him off Sumatra. And yet by 1515 he had secured to Portugal three of the four keys to the mastery of the trade-routes in Central Asia and the East, Malacca, Goa and Ormuz. All that remained was to close the Straits of

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Bab-el-Mandeb, and, with Aden in her hands, Portugal's supremacy would be complete. But King Manuel, fortunate but undiscerning, substituted Lopo Soares de Albergaria for the Governor, and the loyal veteran, with his life work taken from him, died at sea off Goa, broken-hearted.

Miss Sanceau reveals Albuquerque in all his many-sidedness, as commander-in-chief of the army, admiral of the fleet, chief magistrate and final court of appeal for all questions civil and military, head of the public works in charge of foreign affairs and every administrative department; courageous, just, generous towards his enemies, he advocated and pursued policies three hundred years in advance of his time, regulating mixed marriages, founding schools for the natives, granting religious freedom and abolishing suttee. He was intolerant only of disloyalty to the king and insubordination to himself. A hard taskmaster, but no slave-driver, he believed that if the work was to be done well he himself must supervise it. His men worked, and worked hard, when he was behind their backs. When he was gone, the system broke down, and the next seventy years saw the gradual decline of the Portuguese power in the East, the foundations of which he thought he had so securely laid.

The author does not claim to put forward 'any facts not already well-known to the historian', and she has confined herself almost exclusively to the original Portuguese sources, the *Letters* of Albuquerque, the *Commentaries* of his son Braz de Albuquerque, and the histories of Gasper Correa and Castanheda. But she has written an eminently readable book, and done a service to scholarship by reminding us of a field of investigation which is rich in material and as yet largely unexplored. The history of the Portuguese in the East during the 17th and 18th centuries has still to be written; research in the Lisbon archives would probably show that the economic rivalry on the West Coast of Africa during the latter half of the 15th century was more considerable than is generally supposed. It might help to make Portuguese expansion overseas seem less 'an inexplicable phenomenon upon the page of history'. S. GEORGE WEST.

GEORGICA: a journal of Georgian and Caucasian studies. *Published by* Stephen Austin & Sons Ltd. for the Georgian Historical Society, 74 Grosvenor St., London, W.1. No. 1, October 1935, *pp.* 136, 2 *plates*, 12s 6d. Nos. 2 and 3, October 1936, *pp.* 188, 36 *plates*, *map of Georgia*, 30s.

We extend a hearty welcome to the newly-formed Georgian Historical Society and its journal. The region covered by its activities is one of the world's key-positions, yet its archaeology, and especially that of the prehistoric periods, has still to be established upon a sound basis. For archaeologists it is practically a virgin field, and will remain so until attacked by modern scientific

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methods. Meanwhile a beginning has been made outside Georgia to interest the western world in a country that has much in common with Europe.

In the first number Sir E. Denison Ross, the President, defines the scope and objects of the society and laments the small number of Englishmen who have known the Georgian language, interesting if only because it 'cannot be associated with any of the well-known language-families of Europe and Asia'. Mr W. E. D. Allen, the Chairman of Council, writes on the 'Present State of Caucasian Studies'. The Archimandrite Peradze gives a short descriptive list of Georgian manuscripts in England, of which the largest collection is in the Bodleian. Mr A. Gugushvili, the Editor and one of the Hon. Secretaries, contributes a short obituary of the late Professor Nicholas Marr and makes a valiant attempt to interpret for us his (Prof. Marr's) Japhetic theory. He also contributes to each number an account of the Georgian alphabet. Mr J. F. Baddeley writes about the Holy Lance of Echmiadzin, of which the *Illustrated London News* or the *Sphere* published a photograph about four years ago.

The article which interested the present writer most was that (in the second part) on the Georgian Epic, 'The Man in the Panther's Skin', by Dr Titus Margvelashvili. He compares it with the Sumerian epic of Gilgamesh. We have always suspected that the latter has its roots in the hunting culture of the pre-Neolithic period; if so, it is the 'oldest story in the world'. The Georgian Epic was recorded by the poet Rustaveli before A.D. 1204, when, if the author's hypothesis is accepted, the tale had already achieved a life of over 4000 years. Naturally there are difficulties in accepting the hypothesis, but we are not qualified to discuss them. It is in the region covered by this Society, and in the adjacent lands of Persia and Iraq that we should expect to find archaeological evidence of the epoch-making transition from a hunting to an agricultural economy. There are one or two slips; Erech (Uruk-Warka), not Ur, was the 'home-town of Gilgamesh', and surely the tiger was never at home in Nubia? (p. 33).

Mr S. Kakabadze discusses the date of the building of the cathedral of Mtskheta, the old capital of Georgia, a few miles west of Tiflis, and concludes that it was built, or rather rebuilt, in approximately its present form 'roughly between the years 925-945', though additions were made at later dates.

O.G.S.C.

**THE STONES OF ASSYRIA**: the surviving Remains of Assyrian Sculpture, their Recovery and their original Positions. By C. J. GADD. *Chatto and Windus*, 1936. pp. xvii, 252 and appendix, 47 plates, 2 plans. £3 3s od.

A book like this comes very appropriately from one of the keepers of a museum which is so rich in Assyrian antiquities. In fact Mr Gadd has now

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given us in book form the result of his long and detailed studies, and the achievement does him great credit. It is a valuable instrument of research for all those who wish to study the great works of Assyrian sculpture, and will be useful also not only for nearly the whole range of these antiquities, but also for those archaeologists who wish to visualize for themselves the chief works of art attributable to a given reign or period. In the first part of the book Mr Gadd recapitulates the circumstances of discovery of the monuments, when they come from excavations not so well known as those of Layard—those for instance of Rassam, Loftus and Butcher. The second part is a critical catalogue of the principal collections; the author discusses certain attributions and compares different groups of monuments; he states their provenance and the dates when they were acquired by museums. To each monument is attached as complete a bibliography as possible. The illustrations consist of photographs of the monuments themselves or of drawings from the admirable series of Layard, Cooper, Hodder and Butcher, that have not been exhausted by the monuments of Nineveh. The book is a model of what a general catalogue should be, containing all those accurate details that are rightly expected of such a work, while the critical portion forms a history of the great Assyrian monuments of the first half of the first millennium before Christ.

G. CONTENAU.

**RELIGIONS :** the Journal of Transactions of the Society for Promoting the Study of Religions; edited for the Executive Committee by SIR E. DENISON ROSS. No. 18, January 1937. (*Luzac, 46 Great Russell Street, W.C.1*). 60 pages. *Post free, 1s 2d.*

Some of the most readable work of the best scholars is buried in little-known publications like the present brochure. It is with the object of calling attention to it that this review is published. Only if it receives adequate support can such valuable work be published at all.

This number contains two long and valuable articles:—‘New Light on early Palestinian religion (more texts from Ras Shamra)’ by Theodor H. Gaster, and ‘The Indus civilisation in relation to Indian religions’, by Professor John Murphy. Some of the Ras Shamra texts are, in Dr Gaster’s opinion, the ‘book of the words’ of seasonal pantomimes, one at least of which ‘may . . . have been caught up on to the ritual of the Yahweh cult in Israel’ (p. 10). Ras Shamra brilliantly confirms an interpretation of early Mediterranean religion which was suggested long ago by Sir James Frazer, but by inference only. From the Ras Shamra Epic of Chereth and a study of patriarchal legends in the Bible Dr Gaster concludes that ‘the Biblical narratives of the patriarchs are, to a large extent (though not wholly) duplicates of one another’ (p. 15). The Terach of Ras Shamra is identified with Terah, the father of Abraham. ‘Perhaps



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the most arresting of all the discoveries which accrue from the Ras Shamra texts is the fact that they reveal to us at long last the earliest species of that dramatic form which is best known from the classical tragedies of ancient Greece ' (p. 28). This, too, had been suspected ; ' but it was, at best, a product of inference and deduction '. Ras Shamra has provided the *libretto* of such ancestral pantomimes ' acted on the shores of the Mediterranean at about 1250 B.C.' (p. 29). This latter conclusion, Dr Gaster states, has been accepted and endorsed by Professor Gilbert Murray (p. 30).

Professor Murphy emphasizes the modern view that, when the Aryans invaded India about 1500 B.C., they had not developed beyond the stage of the self-sufficing village community ; whereas the indigenous peoples they found there had developed civilized urban communities more than a thousand years before. That does not necessarily imply that the Aryans contributed nothing to the subsequent cross-fertilized culture ; on the contrary that culture owed much to both elements. The Brahman ' was not an Aryan at all, but a priest of the native [Indian] race and religion who was taken into the households of the invading nobles . . . ' (p. 38). The people of the Indus civilization are represented today by the ' low caste ' Dravidians, who will doubtless recover their confidence and self-respect when they realize that ' their ancestors were a powerful and cultured people more than a thousand years before the Aryan forefathers of the Brahmans and high castes—then a half-barbarous folk—invaded India ' (pp. 45, 46).

O.G.S.C.

ROOTS OF THE TREE. By CARLETON STANLEY. *Oxford University Press*, 1936. pp. 107. 5s.

The author of this small book is the President of Dalhousie University in Nova Scotia. He gives us five essays on the ancient world—on early Greek history, on Greek science, Thucydides, Lucretius and on Cretan art. Almost any cultured scholar might produce a book on such topics and we might be no better off. But there is in these essays a certain independence of outlook, a certain vigorous and refreshing originality and a marked firmness and clarity of language which stamps this book as something out of the ordinary. The first and the last essays, for the most part, cover known ground and have little but their freshness of statement to recommend them. But the others are, in effect, restatements of a case, revisions of accepted dogmas, written with force and persuasion. Of Greek science the author maintains that we cannot look on it as merely an anticipation or a germination of our modern advance. He quotes Liebig's definition of Science—' We first observe, we then try to generalise, finally we measure '—as the test to apply to the reality of Greek science. Here is

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its mathematical basis. Many antique civilizations knew how to observe and how to generalize, but it was the Greeks alone who expressed their generalizations *quantitatively*, as we do. In so far as they did that they founded Science and did what no other ancient people were able to do. But Greek science, which applied its knowledge far more than we suppose, was finally killed by Stoicism and religion. 'The introduction of an eastern religion', he says, ended the Greek adventures.

On Thucydides the author is at his best. He shows how the 'History' was a deliberate analysis of the elements of civilization, with the particular conclusion that only democracy is the mode of government fitted for a civilized condition. He refutes Cochrane's view that Thucydides was applying Greek scientific methods to history, and maintains that he was an artist rather than a scientist. Of Lucretius he says that owing to the general suppression of his speculations by other writers and the attacks of the religious, the text of the poem only arrived to influence the currents of thought in Europe when the outlook of Europeans had already been definitely shaped. He shows how Cicero, whom we know for certain to have been fully acquainted with the Lucretian philosophy and works, deliberately denied in public all such knowledge because, when Cicero became a public man of importance, Lucretius had become 'unrespectable', owing to the attacks of the religious-minded and conventional. Cicero thus was the type of English statesman 'from Selden to Balfour and Asquith'.

Altogether this is a notable and refreshing series of essays, illustrating an independent and vigorous mind. S.C.

**LEKYTHOS** : archäologische, sprachliche und religionsgeschichtliche Untersuchungen. By L. J. ELFERINK. Allard Pierson Stichting Bijdragen II, 1934. pp. 96, and plates. 4.90 florins.

This is the second publication of the Pierson Foundation. It consists, in the main, of a philological enquiry into the origin of the Greek names of vases, such as *lekythus*, *aryballos*, *alabastron*, *depas*, *skyphos*, *lagynos*, etc. All these names belong to the oldest stratum of language in Greece and are pre-Greek in form. As one might have expected, the newly arrived Greeks took over, with the usual place-names, names of domestic objects (such as *asaminthos*), among them being the names of shapes of domestic vessels. The author then draws from archaeological evidence to show that all these shapes existed in the Bronze Age. But he should have appealed to that part of the Bronze Age that precedes 2000 B.C. in Greece, if he wished to make his thesis water-tight. For that is the earliest date at which any archaeologist will admit the presence of Greek stock in Greece.

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It is a brief and interesting monograph, with many ruminations on philological themes and some excursions into mythology. These are developed in order to give some religious meaning to those particular vase-shapes which were reserved for tomb-furniture.

THE ISLANDS OF IRELAND. By THOMAS H. MASON. *Batsford*, 1936. pp. vii, 135, 160 plates and maps. 10s 6d net.

This book, we are informed in the preface, is the outcome of a lecture given by the author to the Royal Dublin Society some years ago, and for this reason it has in its easy style the excellent qualities of a good popular lecture and at the same time suffers from the limitations usual to such. For the non-specialist it could hardly be bettered as an introduction to the islands of Ireland; it will make many readers want to come to see these interesting places for themselves, which is probably the most useful function such a book could perform. On the other hand the specialist in, say, folk-culture or archaeology must not expect a work which he will find completely satisfying from his particular view-point. He will, however, find in it much miscellaneous information of which he may not have been aware, while specialist and general reader alike will be grateful for the illustrations.

Mr Mason has chosen an interesting subject—the islands around an island on the edge of the Atlantic are *a priori* likely to prove storehouses of much that has become obsolete in the main stream of European life. So Mr Mason has found them. His best description of island life is in his treatment of the Aran Islands, co. Galway, well known because of Robert Flaherty's film 'Man of Aran', but reading this account shows how much of Aran life the film omitted. The ornithologist will be most pleased with the chapter on the Saltee Islands, abounding with bird life so admirably photographed by the author and his sons. The photographs throughout are technically excellent but they are perhaps more happy in the matter of composition when portraying birds than when dealing with human figures.

The author frequently refers to the relaxation and peace he found during his numerous visits to Irish islands, which visits were spread over the greater part of his life-time and the obvious sincerity of his desire for the simpler things of life fitted him for the study of the island inhabitants because he could gain their friendship and their confidence. Against this, the lack of a knowledge of the Irish language (p. 71) is a handicap in districts where it is still the everyday language of the people. (Inishere, by the way, does not mean East Island, p. 53, but West Island, *Inis Thiar*, having been named in relation to the mainland).

Many side-lights on island life are given: boat-building, basket-making, poteen- (illicit whiskey) making, agriculture by primitive methods and with

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implements known to most only in the collections of folk-museums, fishing, the scenery and weather, the social life, marriage, etc. (one regrets that the author's being a teetotaler prevented him from attending a 'wake') and the economic background of hardships and emigration. Mr Mason speaks highly of the natural courtesy of the island-folk. The historic events are sketched in, the antiquities are described and the whole is enlivened by relevant anecdotes.

The author and publishers are to be congratulated on the photographs and their standard of reproduction and on the attractive format of the book. A reproduction of a Paul Henry painting forms the frontispiece, while even the dust cover is attractive with its striking seascape.

S.P.ÓR.

HOW WELL CAN WE KNOW THE ANCIENT NEAR EAST? By W. F.

ALBRIGHT. Presidential address delivered 15th April 1936. *Journal of the American Oriental Society*, vol. 56, pp. 121-44.

A few points in this illuminating address should be noted; no attempt can be made here to summarize it. A German classical professor, of extreme and unscientific views, has provided Professor Albright with a peg on which to hang a most readable and penetrating analysis of oriental research during the last hundred years. With the German professor we are not now concerned; it is remarkable that a country which has been in the van of progress in oriental excavation should also be responsible for such prodigies of unreason. Professor Albright rightly calls attention to the foundations laid by Schliemann, Petrie, Reisner, Koldewey and their pupils. It is doubtful, however, whether he is correct in claiming that 'European archaeology owes more to Near Eastern studies than the reverse' (p. 134). General Pitt-Rivers laid the foundations of scientific excavation in England in the 80's and 90's quite independently of Schliemann (whose methods, though marking a great advance, were not nearly so scientific) and of Petrie, whose problems were fundamentally different. Our modern school of excavators in Britain derives from Pitt-Rivers, largely through a collateral branch of Roman students, led by Haverfield. The fact that we (and North American) diggers deal with 'unexciting houses' is surely irrelevant when methods rather than finds are being discussed. And, when due credit has been given to Near Eastern excavators of every nationality, it remains true to say that 'Orientalists have seldom reached' the meticulous care with which westerners have treated their humble remains (p. 134).

Professor Albright does well to call attention to 'the value of the Ancient Orient for the student of cultural anthropology' (p. 139). That is still almost a virgin field. The time is nearly ripe for writing a book concerned with the same problems as Morgan's *Ancient Society* (1877) but upon an entirely new and far sounder basis of ascertained historical fact. There is also an immense

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field, equally virgin, in the anthropological study of existing peoples of the Near East—survivals of known and recorded ancient rites and customs, folk-lore, material culture. Of the value of oriental studies, so ably defended by Professor Albright, there can surely be no question, amongst impartial students.

Though perhaps somewhat irrelevant in this context, there is one problem that we hope to see tackled before long, that of the transition from a hunting (palaeolithic) to an agricultural (neolithic) economy. This almost certainly occurred in the Near East, and it was of course of decisive importance in the development of human society. Evidence might be found either in the top layers of a cave-deposit or right at the bottom of an ancient tell. At present the beginnings of riverine culture seem to have no roots.

But we must conclude by expressing appreciation of a thoroughly sound and valuable discourse.

O.G.S.C.

ANCIENT ROME AS REVEALED BY RECENT DISCOVERIES. *By* A. W. VAN BUREN. *Lovat Dickson*, 1936. *pp.* xvi, 200, 9 *plates*, 2 *plans*. 6s.

No one is better qualified than Dr Van Buren to write on the light which recent discoveries have thrown on ancient Rome. His long connexion with the American Academy has given him the opportunity to follow each discovery as it has been made, and the demands of his students keep constantly before him the need to discard technical jargon and describe things in simple language. This little book gives a wide survey of the discoveries made in and round Rome during the last ten years or so. Every subject that warrants a separate chapter is given one, and, since the author has aimed at mentioning everything of note, the chapters are numerous. One might regret in this connexion that, owing to the haphazard and isolated nature of the discoveries, it has not proved possible to knit all the varied topics together into a closer whole.

The book starts with an account of the climate of Rome in ancient times and of the geological structure of its soil, the importance of which for the development of the typically Roman art of building is rightly emphasized. Chapter 2 digresses from the main argument to mention the skull of an elephant of the Early Quaternary Period that was found under the ridge of the Velia and the skulls of Neandertal type found two miles north of Rome among the gravels of the river Arno. (When the author writes, of the Middle Quaternary Period, 'Even at so early a date Italy was exercising that function as a centre of attraction and development for the nations which has distinguished her throughout the ages of history', one may wonder if he has not been too indulgent towards the patriotic fervour of the Italian authority whose account he has used).

Chapter 5 (which might more suitably have come at the beginning, being

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the natural introduction to the main purpose of the book) describes the town-planning of modern Rome and the help which it has given to archaeology. The physical aspect of the semi-isolated hills that formed the nucleus of the primitive city is described in the last pages of this chapter, and this description must be closely connected with the account in chapter 3 of the growth of the city's defensive system, from the earthen rampart associated with the name of Servius Tullius to the ashlar-faced *agger* of the 4th century, and then to the brick-faced concrete circuit of the 3rd and subsequent centuries of our era.

Chapter 4 describes (unfortunately without a plan) the four Republican temples of the 'Argentina Zone', uncovered during the years 1926-28, and the two temples in the Bocca della Verità, long known to visitors, but recently revealed with added charm by the creation of a green space around them. Other temples are mentioned in succeeding chapters, and the descriptions are coloured throughout by a comprehensive work on Italian temples recently published by Van Buren's colleague, Lake.

There is an original account of the curvilinear niche in early imperial temples and of its bearing, on the one side, on the deities to which the temples were dedicated, and, on the other side, on the relations between the emperor and the Roman people.

The accounts of monuments of Augustus, the imperial Fora, and the inscriptions found in them, enhanced by the inclusion of Gismondi's plan, and the pages which describe the psychological basis of Roman inscriptions are especially suggestive. Tribute is paid to the acumen of the Pompeian epigraphist Matteo della Corte and to the fascinating results which followed from his intensive study of the half-illegible scrawls on some of the buildings of the capital.

The monuments bearing on the economic and domestic side of Roman life are described, and emphasis is rightly laid on the influence of Calza's excavations at Ostia, not only for their actual results in laying bare a city of the imperial epoch, but also for the repercussions which they have had in practically every field of Roman archaeology, and most notably in the sphere of domestic architecture.

The scheme of the book is ambitious. The classicist who knew Rome well before the recent excavations will find it invaluable, and, to the student of ancient life who goes to Italy on completing a university course or during vacations, it can be heartily recommended; for one of its most delightful features is the attempt made throughout to trace the psychological basis of particular groups of monuments and to link them with the general background of Roman thought. But the general reader, who knows little of Roman archaeology, will find the book difficult, and possibly will receive the impression of a long and in places rather disconnected list. The attempt, however, to fill a real gap amongst popular books on archaeology was certainly overdue.

R. C. CARRINGTON.

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A GAZETTEER OF ROMAN REMAINS IN EAST YORKSHIRE (Roman Malton and district Report no. 5). By MARY KITSON CLARK. *Yorkshire Archaeological Society, 10 Park Place, Leeds, 1935. pp. 1-142, and map. 21s.*

The work of the Roman Malton Committee is already well known to the readers of *ANTIQUITY*. It has extended its scope gradually from the Roman fort of Malton into the surrounding district, discovering potters' kilns at Crambeck, a pottery at Throlam, and a villa at Langton ; thus showing that careful fieldwork would greatly increase our knowledge of the area. The basis of such fieldwork is, however, a knowledge of available sites. A documented index of Roman remains in the district was therefore needed, and takes shape in this interesting book.

A comparison with the Ordnance Map of Roman Britain soon shows that the work was not unproductive. Known villas increase from 7 to 11 ; potteries are at least five times as many ; finds indicative of permanent settlement rise from 16 to 27, without including single burials. The very numerous records of coins and miscellaneous objects will serve as starting-points for new discoveries. From this point of view alone the work was well worth doing, and Miss Kitson Clark is to be congratulated upon the thoroughness with which she has carried out her task.

The district itself is an interesting one. It has hitherto been considered as a somewhat unproductive and backward area, in which a limited degree of civilization took root under the shadow of the Roman forts, but not elsewhere. During the first stages of the Malton Committee's work, it looked as if this estimate were likely to be confirmed. But as the view widened, it has become clear that this is not so. The list of remains here given enables us already to see the villas occupying the lower slopes all round the main massif of the Wolds ; while the villages are squeezed out on to the worse lands, either hill-tops where water is scarce, or marshes where it is too abundant. In other words, the prehistoric type of distribution continues, with a rising population compelling exploitation of the worse ground. Nothing would be more instructive than a further examination of some of these typical sites. To carry Dr Kirk's work at Costa Beck into the eastern marshes, or up on to the high ground, would be productive of most valuable results. Again, in view of the astonishing results of air-photography in the Fens, it would be of great interest to see what photographs of the eastern marshes would produce.

In its general conformation to a prehistoric distribution of the land-holdings, the district does in fact do little more than confirm a truth already apparent in other districts of Roman Britain. It may be noted, however, that the evidence for continuity is particularly good. In the villas, it has been shown that the

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Romanized houses, erected for the most part early in the second century, were imposed upon ditches of earlier enclosures, related to field-systems : in other words, the building of the villas marks the Romanization of an existing social order. Exactly the same is true of the marsh villages, where such sites as Atwick, Costa, Thornton Dale, Ulrome, Easington, Burstwick and the Leven Canal village, existed before Roman times, and continued to exist during the period. This impression of a native community undisturbed by the impact of Roman forces and absorbent of Roman civilization is a new one for northern Britain ; and it shows that the Parisi, as these folk were called, may have been as highly developed as many parts of the civil province. In dealing with them, we are essentially still outside the military zone.

Certain peculiarities, however, distinguish the area from others near at hand. Its principal town, *Petuaria*, has recently been explored by Messrs. Corder and Romans. Without trespassing upon their important results, it may be noted that it is an exceedingly small thirteen-acre community, quite unlike the standard pattern of cantonal capital imposed, for example, upon the neighbouring Brigantes at Isurium. Indeed, the Celtic name of the place, meaning 'the fourth', implies that it ruled only one of several *pagus*-divisions of the Parisi, though it evidently took pride of place. Thus, the Parisi, unlike neighbouring tribes, were allowed to retain their native organization, without the imposition of a spectacular centralization. The character of the towns harmonizes with the evidence from the countryside.

In the later history of the district, also, there is an individuality which should not escape notice. The evidence from the villas and signal-stations shows that, as the hinterland of York, the district continued to prosper and to receive protection for as long as any part of Roman Britain. But the protection originated from inside. It is most significant that the garrison of *Derwentio*, the principal military centre of the land, usually identified with Malton, is a native levy, the *numerus superveniens Petuerensium*. In other words, the land left to itself from the first by the Roman government retained its special identity until the end, even amid all the bureaucratic tendencies of the fourth century. Miss Kitson Clark's story ends at this point, but we cannot forbear from asking what happened next, and wondering how this highly individual region met the Saxon invasions ? It is obvious that her work is the starting-point for a regional study of the very greatest interest. Two things are now desirable, that the study of the region should be continued into the Saxon period, and that the study of the parallel Brigantian canton should be undertaken without delay. No one is in a better position than Miss Kitson Clark for the continuation of the work in either direction.

I. A. RICHMOND.



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MAP OF SOUTH WALES, showing the distribution of Long Barrows and Megaliths. Introduction by W. F. GRIMES. *Southampton: Ordnance Survey Office*, 1936. *pp.* 56 *and map.* 5s 6d *on linen.*

THE MEGALITHIC MONUMENTS OF WALES. By W. F. GRIMES. (From *Procs. Prehistoric Society*, 1936, *pp.* 106-139). *Cardiff: National Museum of Wales*, 1936, *pp.* 34, 2 *plates*, 31 *figures.* 1s.

These two studies are complementary to one another. The paper covers the whole of Wales, but the map deals with South Wales only, though a fellow for North Wales is promised. They give the results of the first complete survey of the megalithic monuments of Wales. The competence of the author is beyond question, and it is therefore only necessary to mention some of the more interesting points that the survey has revealed.

Upon the question of omitting doubtful sites Mr Grimes has proceeded with an austere severity that cannot fail to give confidence even if it disappoints expectations. Every site has been visited—of itself no mean achievement in a land of mountains—and it is perfectly safe to say that Mr Grimes is the only person who can speak from first-hand knowledge of all the monuments. The difficulty of omission does not arise with reference to natural features that have been promoted into megaliths by the aid of enthusiasm and imagination, but with reference to destroyed or mutilated monuments to which only a bare reference exists. Mr Grimes has omitted them all. Further research may rehabilitate some of them, but we can be certain that every monument shown on these maps has passed a critical scrutiny. There may be, and possibly are, more, but there cannot be less.

A tear may be dropped over the demise of the churchyard stone circle of Yspytty Cynfin, but when it was found that the churchyard wall passed *under* the stones of the circle its omission from the list was inevitable. Its site aroused suspicion in any case because it occurs in a region that is otherwise devoid of megaliths.

A conclusion that may be surprising is that the most favoured sites are valley flanks and bottoms, below the natural tree level, and consequently sites that would require clearing before they could be used. Mr Grimes would call it a lowland culture, but lowland is rather a comparative term in a country like Wales. The 'lowland' of the Vale of Glamorgan is about 400 feet above sea-level on the average. Perhaps it would be more accurate to call it a culture of the foothills; it is at least certain that it was *not* a culture of the moorland.

Upon the distribution of the long barrows Mr Grimes advocates 'the theory of two groups having a cousinly rather than a direct relationship'. The details of this theory cannot be given here, but there is one aspect of distribution

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that strikes one in the face—the Cardigan blank. From the Teifi to the Mawddach there is no record of a megalith of any kind though the character of the country does not differ greatly from north Pembrokeshire on the south side of it, or Merioneth on the north. The reason for this large blank must be a matter of speculation, but it is very tempting to connect it with the disappearance of a large area of lowland into Cardigan Bay ; the lost cantref of Gwaelod of Welsh legend and of Peacock's romance. This hypothetical lowland was probably a shelf of glacial drift. The megaliths might have been erected upon it, in which case they would have disappeared with it, or it might have been forbidding in character and therefore avoided.

Upon the map are marked some fascinating-looking roads in the neighbourhood of the Presely Hills. Their significance is not apparent until one reads the introduction, and then the interest increases. The ' blue ' stones at Stonehenge were proved by the late H. H. Thomas to have come from the Presely Hills and Mr Grimes (happily forgetting for a moment his native caution) has indicated ancient routes over which they *may* have travelled, upon the most probable hypothesis that they were transported by land from the quarry to a port of embarkation and thence for the greater part of the remaining distance by sea. Some of our roads may be beyond comparison the most ancient things that are still in use.

Finally it should be mentioned that the introduction to the map contains a complete schedule of all the sites delineated upon it with a note of the chief literary references to each monument.

H. J. RANDALL.





AVLBURY, WILTS (see 'The Plan for Avebury', pp. 190-3)  
*Air-phot. Major G. W. G. Allen*

# Antiquity

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### Editorial Notes

THE PLAN FOR AVEBURY, which we print on pages 490-3, has been issued to the public over the names of a number of distinguished persons as an appeal for funds 'to preserve the surroundings of Avebury by means of a Planning Scheme'. The sum of £11,000 is required, and the scheme will be controlled by representatives of certain public bodies and by the National Trust. We most heartily commend it to our readers and (quoting the words of the appeal) to 'all those who love the English countryside, who reverence our long history, and who wish to see what is still unspoilt preserved for our children's children'. The address for subscriptions is The Avebury Preservation Fund, Barclays Bank, 23 Grosvenor Gardens, London, S.W. 1.

We are indebted to Major G. W. G. Allen for allowing us to reproduce as our frontispiece the very fine air-photograph of Avebury which he has taken quite recently.



The scheme is the most important of its kind that has been submitted to the country since the land round Stonehenge was acquired for the National Trust ten years ago, for about three times the amount now needed. It would be possible, of course, to suggest minor improvements in it, such as the inclusion of part of Avebury Down, with its little circle of stones and its prehistoric hollow road lined with sarsens,

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and we earnestly hope that it may be found possible to include this area. The land is of little value, being rough pasture that has never, since prehistoric times, been cultivated—which is why it is of such interest to archaeologists and others. But for the rest the scheme is probably the best that could have been devised to secure for all time a beautiful fragment of historic England.



Nearly 300 years have passed since the day in January 1649 when Avebury was discovered by John Aubrey. What a day that must have been for him ! Nowadays his successors, the field-archaeologists who roam the countryside with Ordnance Maps, have for the most part to be content with such minor monuments as round barrows ; and it is for them a red-letter day if they can bag a new long barrow or a camp. The harvest has been gathered in by a long succession of field-workers, and their discoveries have been, in great measure, embodied in the national maps. We in England have now arrived at a fairly satisfactory state of affairs in such matters, by a characteristic compromise between the State and the individual. The process consists of discovery, record of position, scheduling, and finally (in certain instances) of excavation. We even record the exact position of important finds of objects ; in this the co-operation of museums, learned societies, and individuals with the Ordnance Survey has reached a high point of efficiency.



Scotland is perhaps one of the most promising parts of Britain awaiting the field-archaeologist. It would not be correct to imply that many major sites remain to be found there, though Mr Ian Richmond's rediscovery of a lost Roman fort at Fendoch, near Crieff, shows that such possibilities cannot be ruled out. Nevertheless it is certain that a whole mass of minor antiquities are still unrecorded on the maps, and the field-archaeologist may expect to be amply rewarded. A great many ancient monuments were recorded by the compilers of the Statistical Account of Scotland in the 18th century, before the Ordnance Maps existed. When the national survey was undertaken, many of these sites were incorporated on the maps, and the surveyors,

## EDITORIAL NOTES

in those more leisurely times, often took a great deal of trouble to locate them. But they had necessarily to rely mainly upon the help of local archaeologists, and when such were not to be found in a district some sites were naturally left out. For instance, until recently it was not known that there is a small group of long cairns in Strathearn, though some of them were mentioned in the Statistical Account ; and another example also mentioned there, in the extreme south of Roxburghshire, was only located (by the present writer) last summer.



The difficulties of the pre-Ordnance Survey field-archaeologists can best be appreciated by a visit to countries which still have no large-scale maps. They had no means except verbal description of recording the exact position of their discoveries ; no doubt they did their best, but their descriptions are often vague and baffling. One encounters precisely such difficulties today in Balkan lands which archaeologically are almost in the same condition as England was in the 17th century. It was the good fortune of the writer to explore part of Bulgaria last autumn, in the company of two colleagues who are familiar with the field antiquities of that country. As one drove along the roads in a primitive four-wheeled cart one passed rows of round barrows placed on the hills just like those of Wessex. Near one such group was a miniature Carnac, consisting of some twenty huge stones, some standing, some fallen, some lying in pits dug for them by the farmer who desired to get rid of them. It was curious to find the same method adopted here as at Avebury during the 19th century and before. One felt as if one were travelling in time back to the days when Long, Colt Hoare and Stukeley denounced the vandalism they were powerless to prevent.



We discussed the problem of preservation on the spot. We looked forward to the time when every country will treasure such relics of its ancient past ; we had an advantage over the older British archaeologists, for whereas they could look forward to such a day with the eye of faith only—for in their time national protection of ancient monuments did not exist—we could point to a historical enlightenment that had actually occurred elsewhere in Europe. The main difficulty was one of

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education. For national protection is a function of public opinion ; where no body of educated opinion exists, when no support for such measures can be found even in quarters where it might properly be expected, there vandalism and wanton destruction must inevitably achieve their fatal results. The remedy is one which lies beyond the reach of the archaeologists most concerned. Their colleagues in other lands can, however, help them by various methods ; and it is partly with this intention that these remarks have been printed here. Bulgaria has a rich heritage of ancient history, and the remains are still for the most part wonderfully perfect. Her museums are served by devoted enthusiasts whose work is a labour of love. But they need more support if they are to achieve for their country all that they could accomplish if only the means to do so were available.



The completion of the eleventh volume of ANTIQUITY brings us once more to the time when we ask our Subscribers for the renewal of their support and their attention to the notice printed below. We would also add that in more than one way it is a great help if they will be good enough to make an early response to this intimation. Each year we have to send out more than one reminder, a trouble which might be spared.



### VOLUME XII for 1938

*A renewal form for subscriptions for the new volume is inserted in this number. It is omitted from copies sent to subscribers who pay through their banks or who have paid in advance for 1938.*



## Some Anglo-Saxon Potters

by J. N. L. MYRES

THE study of Anglo-Saxon pottery in the pagan period in England has probably received less attention, and has certainly made less progress, than that of any other archaeological epoch. Our knowledge of Neolithic, Bronze Age and Iron Age ceramics has been revolutionized in the last ten or fifteen years, and it is now possible to use the pottery of these periods, as it should be possible to use the pottery of any period, as the most significant and sensitive element in the cultural evidence for the time. With some types of Roman pottery it is possible to go still further, and to treat them not only as a barometer to indicate the varying cultural pressures, so to speak, of different areas and sites, but even as a chronometer for the close dating of the different phases in their occupation. But with Anglo-Saxon pottery at present we can do none of these things. Apart from certain rare and peculiar forms recently studied by Roeder,<sup>1</sup> we know about as much and about as little about it as was known when Neville published his *Saxon Obsequies* in 1852, or Kemble first drew attention to the continental parallels in a pioneer paper in *Archaeologia* in 1856.

The reasons for this neglect are easier to point out than to eliminate, and it is not the purpose of this paper either to describe or to deplore them. Anglo-Saxon pottery has generally been regarded as ugly and uncouth; the extraordinary variety and spontaneity of its ornamentation has made systematic classification difficult; and hardly any of the numerous long series of urns in our Museums have been published with any attempt at adequacy, even in cases where the remaining contents of a cemetery have been properly put on record. The object of this article is to make a brief excursion into one of the byways of the subject, and in so doing to suggest that Anglo-Saxon pottery deserves more attention than it has received. It may never be possible to get the same kind of information from it that the students of other periods extract

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<sup>1</sup> See *Röm.-germ. Kommission*, 1928, XVIII, p. 149, for his article on 'window urns': and *Mannus Ergänzungsband*, 1928, VI, p. 190, for his study of 'spout-handled urns'.

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from their pottery : but it may be found to possess some peculiar if not unique features of its own.

One of the commonest types of ornamentation on Anglo-Saxon pottery is that which is produced by the use of stamps made of bone, wood, or metal, which were impressed on the soft surface of the pot before baking. The history of this style of decoration is somewhat obscure : it had been commonly used on various classes of provincial pottery within the Roman Empire in the 4th century, as, for example, on the products of the New Forest industries during the last phase of Roman rule in Britain. It appears also in the 4th century, if somewhat sparingly, on the purely native pottery of the Saxon homelands between the Elbe and the Weser, and again in Frisia which lay between this region and the frontiers of the Empire on the Rhine. Whether it was originally a barbarian device, or, as is much more probable, a borrowing by the barbarians from Roman provincial fashions, need not concern us. It is in any case clear that stamped decoration caught the fancy of potters both within and without the Empire at this time and was becoming increasingly popular in the period when migration to Britain was taking place. And in no part of Western Europe did it become more popular afterwards than in Britain. Eventually indeed, perhaps in the first half of the 6th century, it came to dominate all other forms of ornament, and largely to supersede the knobs and bosses of the purely barbaric tradition in the invaders' continental homes.

In Britain itself the focus of this development was in the Midlands in the lands radiating from the Wash and the Fens, from Cambridge and Bedford on the south through Northants, Warwickshire, and Leicestershire and westwards to the middle Trent. Here Angle and Saxon traditions were thoroughly mixed, especially in the south. Among the Humbrenses of Yorkshire and Lincolnshire, and in East Anglia, on the other hand, the dominant Angle strain reduced the prevalence of stamped ornament to some extent, for it had never been in vogue among the continental Angles. But even in the Anglian parts of Britain its occurrence is far more common than it had been on the continent, even in those Saxon areas where its use had been most frequent before the migrations began.

Now this prevalence of stamped ornament provides the means of introducing a personal element into the study of Anglo-Saxon pottery in a way which is almost impossible in dealing with other classes of primitive ceramics in this country. We can in fact identify with some certainty the work of individual workshops and of individual potters

## SOME ANGLO-SAXON POTTERS

by observing on different pots the use of identical stamps or groups of stamps. In the simplest type of case the two or more pots concerned may be almost identical in other respects as well as in the use of the same stamps. No one will deny that the two vessels from North Luffenham, Rutland (FIG. 1, now the property of Mr V. B. Crowther-Beynon, F.S.A., to whom I am indebted for the photograph and for permission to publish it) are by the same hand. Their general likeness in form and fabric as well as similarities of detail—each has four neck lines above the single row of stamps, five lines below it, and seventeen small solid bosses—make any other conclusion impossible, quite apart from the use on each of the same stamp, a simple impressed ring, a quarter of an inch in diameter. Now these two pots were found by Mr Crowther-Beynon accompanying two inhumed bodies which had been buried in adjacent graves. It looks very much as though we were dealing in this case with a family burial, in which each successive interment was accompanied by an appropriate pot made by the same rather unimaginative family potter. A similar case is provided by the two vessels from Brighthampton (Oxon)<sup>2</sup> which were also found in adjacent graves (FIG. 2). Or we may find instances of the same design for a pot carried out in several different sizes: a good example is shown on FIG. 3. These three vessels come from the adjacent cemeteries of Lackford and West Stow in West Suffolk and are now in the Ashmolean Museum: they are identical in design and each shows the use of the same two stamps. It may be that here too we have simply the products of one housewife intended for family use, but the unusual regularity and precision with which the three sizes are executed give them a very professional look; they raise the possibility of something like a miniature commercialized industry, even perhaps of mass-production on a limited scale.<sup>3</sup>

These however are simple cases: on FIG. 4 are two vessels from the Girton cemetery, Cambridge, which illustrate the next stage. Both are

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<sup>2</sup> See J. Y. Akerman, *Second Report of Researches . . . at Brighthampton, Oxon*, 1859, p. 3, graves 24 and 27, and the cut on p. 14. The bodies in this case were those of a man and woman, perhaps husband and wife. Akerman's account is reprinted from *Archaeologia*, xxxviii.

<sup>3</sup> In the Moyses's Hall Museum, Bury St. Edmunds, there is another vase apparently by this potter. It came from a local collection and its findspot is unrecorded. Since however two of the three stamps on it appear to be identical with those on the three vessels on FIG. 3, and its general scheme of decoration is closely similar to theirs, there need be little doubt that it came from Lackford or West Stow, which are both in the immediate neighbourhood of Bury St. Edmunds.

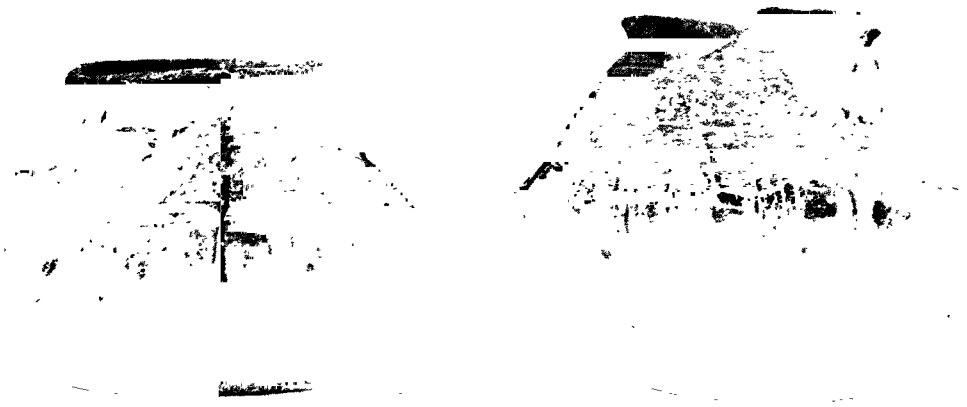
## ANTIQUITY

well made urns of considerable decorative pretensions, the larger of them being altogether exceptional both in size and elaboration of ornament. They are linked by general similarity of form and of some details of treatment, such as the 'hot cross bun' effect of the lower zone of bosses, but there are considerable differences in the two designs. Examination of the stamped ornament, however, makes it quite clear that they are the work of the same hand, for of the six different stamps which are used on the larger vessel, five reappear on the smaller. A good many pairs of this kind could be given, and there is no need to quote them in detail; examples exist in most of the cemeteries from which any considerable numbers of urns have been preserved, such as Girton and St. John's (Cambridge), Heworth and Sancton (Yorks.), or Caistor-by-Norwich (Norfolk).

Where a really long run of decorated vessels is preserved from a single site we may expect to find larger groups of urns from the same hand or the same workshop. At Sancton (Yorks.) at least four vessels with an unusually elaborate design which includes five stamps, all certainly from the same hand, were among the large number found. Two of these are preserved, one at Hull and one at the Ashmolean, while the other two were apparently too fragmentary to be kept.<sup>4</sup> The best group of this kind known to me at present is shown on FIG. 6. These five urns from Girton (Cambridge) now in various states of disrepair, were once of the same general form, with high conical neck and rather inconspicuous shoulder bosses. They all once exhibited the same general scheme of decoration: an upper zone of stamps on the neck, a zone of lightly drawn linear chevrons below it, then two or three further zones of stamps, and finally pendant empty triangles between the shoulder bosses, demarcated by lines which rise to intersect over the bosses. This rather unusual combination of decorative elements occurring on each raises a strong presumption that here again we are dealing with the work of one potter, and an examination of the stamps reveals the interesting fact that while the same ones are not used on all, they do interlock from pot to pot in a most convincing way as is shown in tabular form on page 393. Thus the first pot shows two stamps: on the next three these two stamps both appear along with the same third one: and on the last pot this third stamp is used with two fresh ones. Thus while no pot has less than two nor more than three different stamps, and no one stamp appears on all five pots, the five pots have only

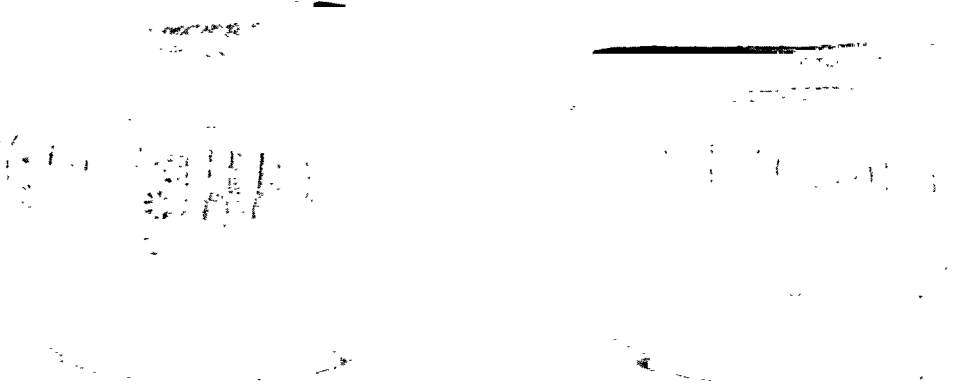
<sup>4</sup> See T. Sheppard, *Hull Museum Publications*, 1909, 66 and 67, p. 53-4, and pls. III, 4 (reprinted from *Archaeologia*, 1880, XLV, pl. XXXIII) and IV, 9.

PLATE I



Height 5 ins

FIG. 1. ANGLO-SAXON URNS FROM NORTH LUFFENHAM, RUTLAND (see p. 391)  
*in possession of V. B. Crouther-Bevnon, Esq.*



Height 3½ ins

Height 3 ins.

FIG. 2. ANGLO-SAXON URNS FROM BRIGHTHAMPTON, OXON (see p. 391)  
*Ashmolean Museum*



Height 7 ins

Height 8½ ins

Height 5½ ins.

FIG. 3. ANGLO-SAXON URNS FROM LACKFORD AND WEST STOW, SUFFOLK (see p. 391)  
*Ashmolean Museum*

PLATE II



Height 8½ ins



Height 13 ins

FIG. 4. ANGLO-SAXON URNS FROM GIRTON, CAMBRIDGE (see p. 391)  
*Cambridge Museum*

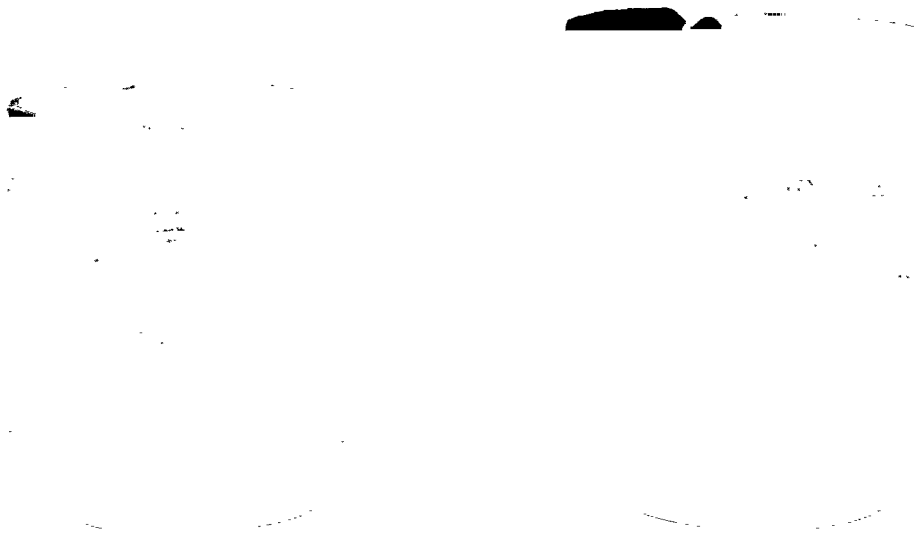
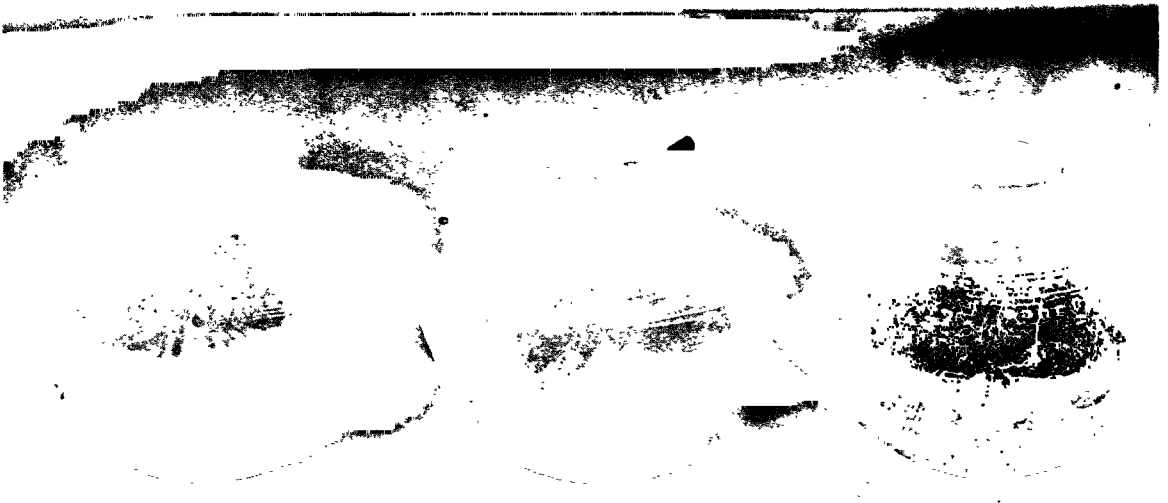
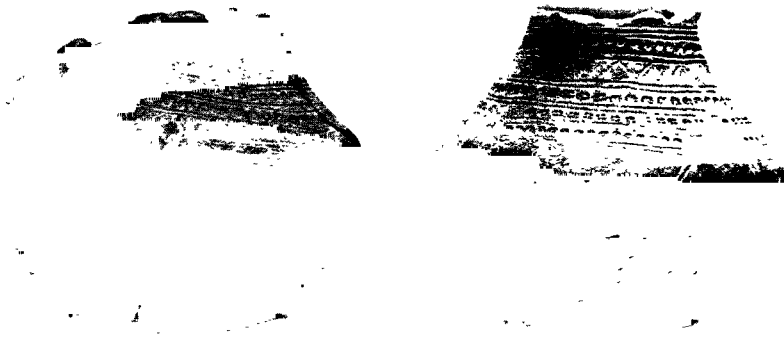


FIG. 5. ANGLO-SAXON POTS FROM EAST SHEFFORD, BERKSHIRE (see p. 393)  
*British Museum*



Average Height 8½ ins.  
FIG. 6. ANGLO-SAXON URNS FROM GIRTTON, CAMBRIDGE (see p. 392)  
*Cambridge Museum*

PLATE IV



Height 8 ins.






FIG. 7. ANGLO-SAXON URN FROM GIRTON, CAMBRIDGE, NOW IN MUSEUM FÜR KUNST UND GEWERBE, HAMBURG (see p. 398)



## SOME ANGLO-SAXON POTTERS

five stamps between them, and every pot has at least one of its stamps in common with that on another of the group. The proof of their common origin could hardly be more convincing.<sup>5</sup>

It is sometimes possible to be reasonably sure that a single workshop is responsible for two or more pots even in cases where the stamps used are not quite identical. A good instance of this is provided by the

STAMPS	POTS.				
	1	2	3	4	5
	X	X	X	X	
	X	X	X	X	
		X	X	X	X
					X
					X

STAMPS USED ON THE URNS OF FIG. 6

two little vessels from East Shefford, Berks., shown on FIG. 5, and now in the British Museum. In fabric, form, and in the general decorative scheme of slashed bosses arranged in a continuous zigzag round the pot with vertical bosses, each bearing a single groove, depending from

<sup>5</sup> It is highly probable that the pot illustrated by Hollingworth and O'Reilly, *Anglo-Saxon Cemetery at Girtton*, 1925, pl. VII, 1, also belongs to this group. It has the same horizontal zone of linear chevrons and one of its two stamps appears to be identical with the first illustrated on this page, but the more numerous shoulder bosses have driven out the pendant triangles and altered the lower part of the design.

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them, the two vessels are so closely similar that they clearly come from the same workshop. But they show minor differences, additional necklines and bosses on the smaller vessel, and though the two stamps are of the same criss-cross or 'textile' class, they are not identical, one being a 2 by 2 square and the other a 6 by 1 elongated rectangle of a type much commoner on Frankish than on Anglo-Saxon fabrics. Other instances could be given in which a potter shows a tendency to use several different examples of the same general class of stamp. Thus a couple of pots from St. John's, Cambridge (FIG. 8, upper pair) are closely related in form, fabric, and general treatment (note the rippled shoulders and triangular grouping of the stamps), but the circular 'textile' stamps are not quite the same, one having a 4 by 4 criss-cross, the other a 3 by 5. It is possible that this may be a case of such a stamp being actually formed by holding a piece of coarse canvas or other textile over the end of a stick, and a change in the position of the stick would thus affect the pattern of the stamp. But while some such stamps were certainly made in this way, most criss-cross designs were produced by cutting the required number of grooves directly onto the flat end of a stick or bone, and several such implements, which can be very quickly made, would probably be found in the equipment of any potter who favoured this type of stamp. It is necessary however to be cautious at this point. It would clearly be absurd to claim as the work of one potter all vessels in which closely similar types of stamp were used: many types of stamp, notably the 'cross-in-circle', 'star-in-circle', and 'concentric-circles-with-raised-centre' types are very common and occur with innumerable variations in almost every cemetery. It is only where, as in the East Shefford and St. John's instances, the similarities of form, fabric and detail are otherwise close, that it is legitimate to claim pots with allied but not identical stamps as the products of one workshop; most large cemeteries show many borderline cases which it is generally wisest to ignore.

Still more precarious would it be to ascribe to one hand pots of similar style on which stamped ornament is lacking. Many of the unstamped pots of Anglian type decorated with lines, grooves, or bosses which are common in the Humbrenian area and East Anglia are strikingly similar to one another, but where the designs are simple this is only to be expected even if all the women in the community made their own pots. Where the designs are complex and individual, a greater probability may arise. Among the long and important series

## SOME ANGLO-SAXON POTTERS

of urns from the Sancton cemetery (E. Yorks.) there are three unstamped pots, two of which are now at Hull, and the third in the Ashmolean Museum at Oxford, which are almost certainly from one workshop.

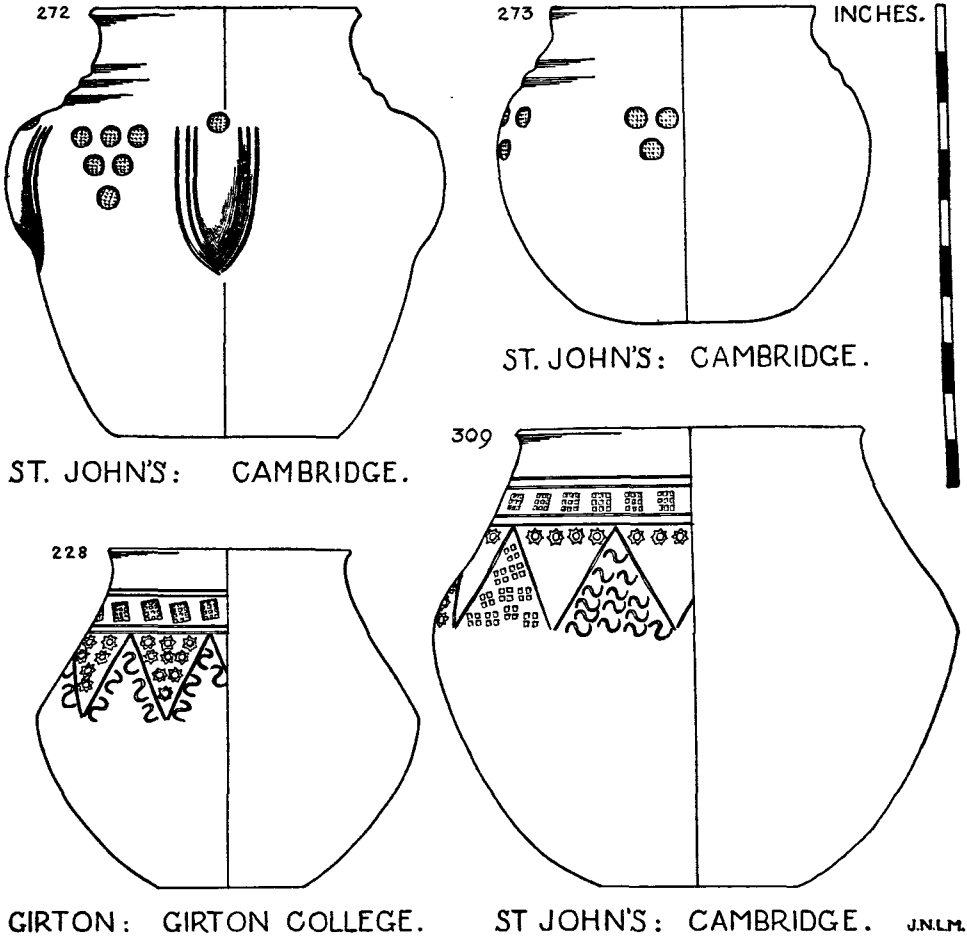


FIG. 8

Each is elaborately decorated with vertical slashed bosses and small round knobs arranged in the same scheme, and the panels between them are filled with freehand designs of swastikas and other scrawls and

## ANTIQUITY

patterns in light grooving which are clearly the work of one rather original hand.<sup>6</sup> But such instances are necessarily rare.

So far we have dealt only with cases in which two or more examples of the work of one potter occur in a single cemetery. On FIG. 9 in the lower row are three vessels obviously the product of one hand which come from sites several miles apart, and the fact that, by one of those happy tricks which almost compel one to credit the goddess of coincidence with a sense of humour, the two sites happen to be Girton and Newnham need not be allowed to obscure the interest of the phenomenon. It raises speculations of interest. Does it mean that there were itinerant peddlers of pottery in the sixth century? Did the women from the surrounding villages buy their hardware then, as now, in the Cambridge market? or is it a result of intermarriage between the two communities, the lady taking her pottery stamps and her taste in decoration with her to her new home? Her individual tricks are at least worth noting: the use of two stamps, both uncommon in design, the fondness for placing a single impression of one of them between the upper ends of her groups of zigzag lines, and the invariable grouping of these lines in threes. Another case of the same potter's work appearing on two sites, again in the Cambridge area, is shown on FIG. 8 (lower row). The larger of these two vessels comes from the St. John's cemetery. Its decoration comprising a horizontal zone of stamps, demarcated top and bottom by two light lines, and with zigzag panels of stamps below, is closely paralleled by that of the smaller urn from Girton. Two of the latter's three stamps, a large reversed s and a seven-point star rosette with raised centre, neither of them at all common, occur also on the St. John's vessel, while the third, a 2 by 3 criss-cross in a rectangle, employed only in the upper horizontal zone, is almost identical with the 2 by 2 criss-cross in a rectangle which occupies the same position on its fellow.

Most of the instances so far taken have been ones in which the pots ascribable to one maker have been of similar form. In the upper row of FIG. 9 there is a case of a Girton potter who evidently made vessels of a number of different types. On the left is a simple jar without bosses; in the middle a rather elaborate effort at a big bossed

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<sup>6</sup> The Oxford example is published by Rolleston (*Archaeologia*, 1880, XLV, pl. xxxiii, 1). One of the Hull examples is illustrated by T. Sheppard, *Hull Museum Publications*, 1909, 66 and 67, pl. viii, 18. The other, which is much smaller, has not been published; it has been wrongly restored from the neck upwards which serves to mask its likeness to the other two.

## SOME ANGLO-SAXON POTTERS

urn with a raised and slashed collar, and on the right a small accessory vessel with a pedestal foot. Of the two stamps employed one occurs on all three, and both on the two larger vessels. We can thus say with certainty that pots of these three types, being made by the same hand

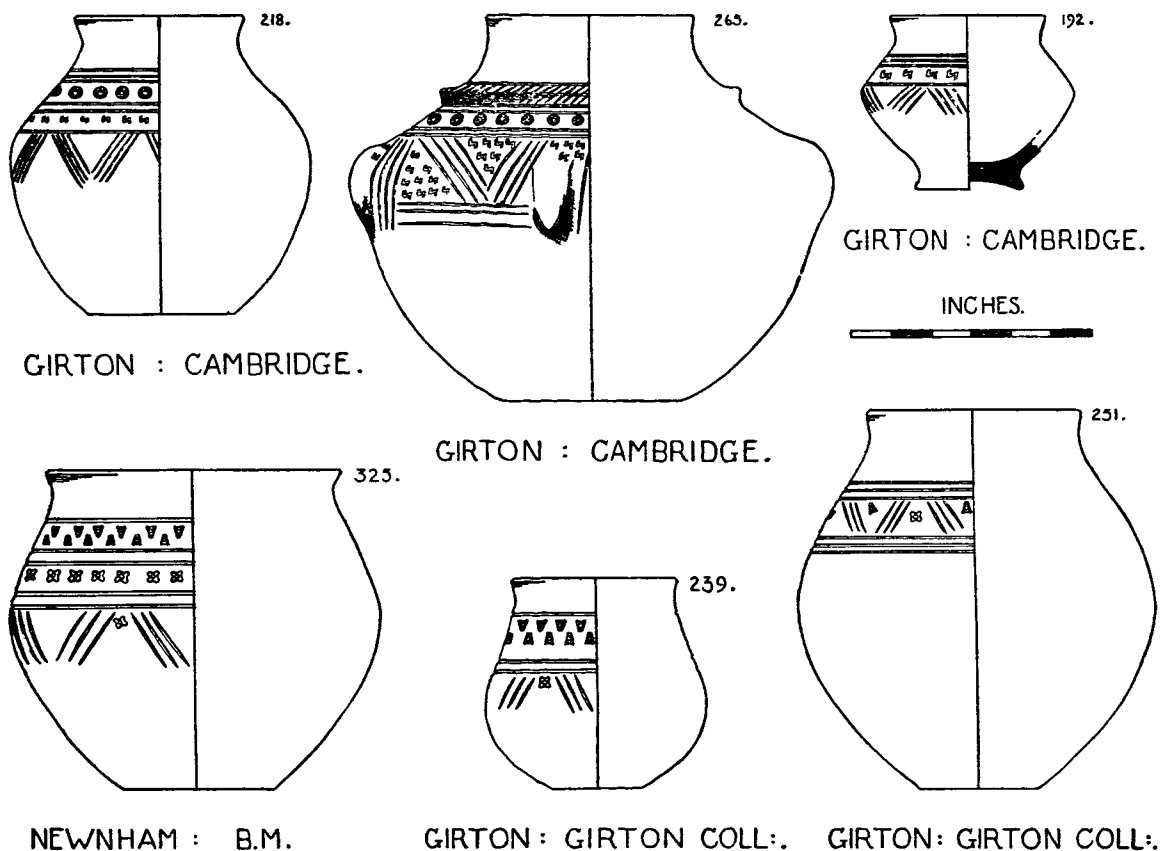


FIG. 9

with the same tools and the same individual tricks of technique—note the invariable grouping of the zigzag lines by this potter in fours—are roughly contemporary; a fact which it would be difficult, if not impossible, to prove in any other way, and one which illustrates the danger, into which some scholars have fallen, of attaching dates to the

## ANTIQUITY

varieties of pottery in this period on a rigid classification of forms.<sup>7</sup> Though no doubt certain forms were more fashionable at one date, and certain others at another, it would appear that form alone is a very insecure foundation for the chronology of Dark Age pottery: much more significance should be attached to the differences in decorative design and in the styles of ornamentation. With regard to this particular potter, for example, it may be suspected that the creation of the large bossed pot in the centre called for a rather exceptional effort on her part, for she has clearly made a somewhat unsuccessful attempt to use on a form unsuited to it the linear zigzag pattern which, to judge from the other two vessels, was her favourite decorative device. In so doing she has got out of step with the bosses and the whole scheme has gone awry. Now on typological grounds this large pot with its bosses and its retention of the primitive slashed collar would naturally be placed earlier than the jar on the left, but a study of the design suggests, as we have seen, that it should be treated rather as a late survival of the older type into an age when fashions had begun to change. We may even think of it, if we like, as a piece of deliberate archaism specially designed for an old-fashioned funeral in a family with conservative tastes.

To those who regard such speculations as merely fanciful, or who would prefer to think that the resemblance between these vessels is only another joke of coincidence, the following anecdote may help to bring the conviction that the principles underlying this byway of ceramic study do in fact work. In 1935 I sketched in the Museum für Kunst und Gewerbe in Hamburg two Saxon pots which were described as having been found in England. One of them seemed to me vaguely familiar and on my return home I found that it was almost the double of the jar on the left in the top row of FIG. 9 by the Girton potter whose work was discussed in the last paragraph. It is shown here on FIG. 7. Enquiries from the Hamburg Museum produced the information that it had been received in exchange from the Cambridge Museum, but that nothing was known of its findspot. When I was again in Hamburg in 1936 I told the authorities of the Museum that their urn almost certainly came from the Girton cemetery, which had produced three other vessels by the same potter, and asked permission to handle it. Looking inside I found, as I had hardly dared to hope, a label still adhering to its interior which had not been noticed before: it bore, in

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<sup>7</sup> See, for example, A. Plettke, *Ursprung und Ausbreitung der Angeln und Sachsen*, 1920.

## SOME ANGLO-SAXON POTTERS

a faded but familiar hand, the words 'Girton College'. I think I had something of the feeling which the first astronomer must have had when he predicted an eclipse by calculation and it occurred.

These brief notes hardly do more than scrape the surface of a subject which has many levels and is worth clearing to bedrock. We shall never be able to treat Anglo-Saxon pottery in the same sort of way as Greek vases have been treated in recent years, to isolate the 'great masters' from the humbler folk and to write learnedly of schools and influences. But it is already becoming necessary to attach identity discs to the 'mistresses' of Girton, where, out of the eighty best preserved pots with stamped decoration no less than thirty-five can be plausibly ascribed to only eleven potters: and the same may soon be the case with other cemeteries. Unfortunately the material available from individual sites is too fragmentary to give a proper picture. It is not often realized that no Anglo-Saxon cremation cemetery of any size has ever been completely excavated in England; even our longest runs of urns are incomplete fragments of series the rest of which have either been destroyed or yet await recovery. If ever a midland cemetery could be found and completely cleared, in the same sort of way as the cemetery of Wester Wanna in north Germany has been cleared of its four thousand urns, not the least interesting result of such an enterprise would be the flood of light thrown by the pots themselves on the numbers, the relationships, the economic life and even the personalities of those who made them.

Acknowledgments are due to the authorities of the British Museum, the Ashmolean Museum, the Cambridge Museum of Archaeology and Ethnology, the Hamburg Museum für Kunst und Gewerbe, and to Mr V. B. Crowther-Beynon for permission to reproduce photographs of urns in their possession.

# The Church of St. Martin at Angers

Roman, Merovingian, and Carolingian Constructions

by GEORGE H. FORSYTH, JR.

**A**LTHOUGH situated in the heart of Angers a few squares behind the Cathedral, the disused church of St. Martin lies so completely hidden by encroaching modern structures that a view of its tower may only be had from one side street. Likewise an undeserved obscurity has descended upon its past history. Known before its dissolution in 1790 as one of the most venerable religious foundations of Angers, whose canons received their appointment from the king himself, the ancient College has left almost no records of its activities and vicissitudes. Nearly all its documents have perished at the hands of the revolutionists and the book-binders. Even archaeologists have left the church in relative neglect ; for in spite of the fact that it has been known and casually referred to since the days of de Caumont as an interesting example of Romanesque and pre-Romanesque architecture, it has hitherto been surveyed only once, by Gailhabaud in 1848. Even his handsome engravings (in *Monuments Anciens et Modernes*) quite omit the twelfth century choir and apse which so adequately mirror the power and growth of that fertile Anjou whose counts could step to the throne of England. The structure received no adequate attention until Canon Pinier acquired it in 1903, saved it from imminent ruin, and by excavations under the crossing revealed the importance of the site.

The building now consists of a nave, whose façade, roof, and north aisle have disappeared, a transept of great length with a tower at the crossing, and a large choir and apse, flanked by a chapel and a sacristy. The nave is of the later eleventh century. The crossing may be shown to belong to the tenth century. The tower above it, excepting its later vault, and the bulk of the transept were reconstructed by Count Fulk III Nerra, that ' pious bandit ', who elevated the church to collegiate rank, with thirteen canons, as indicated by a document of 1020. The remainder of the building eastward, with its imposing proportions and



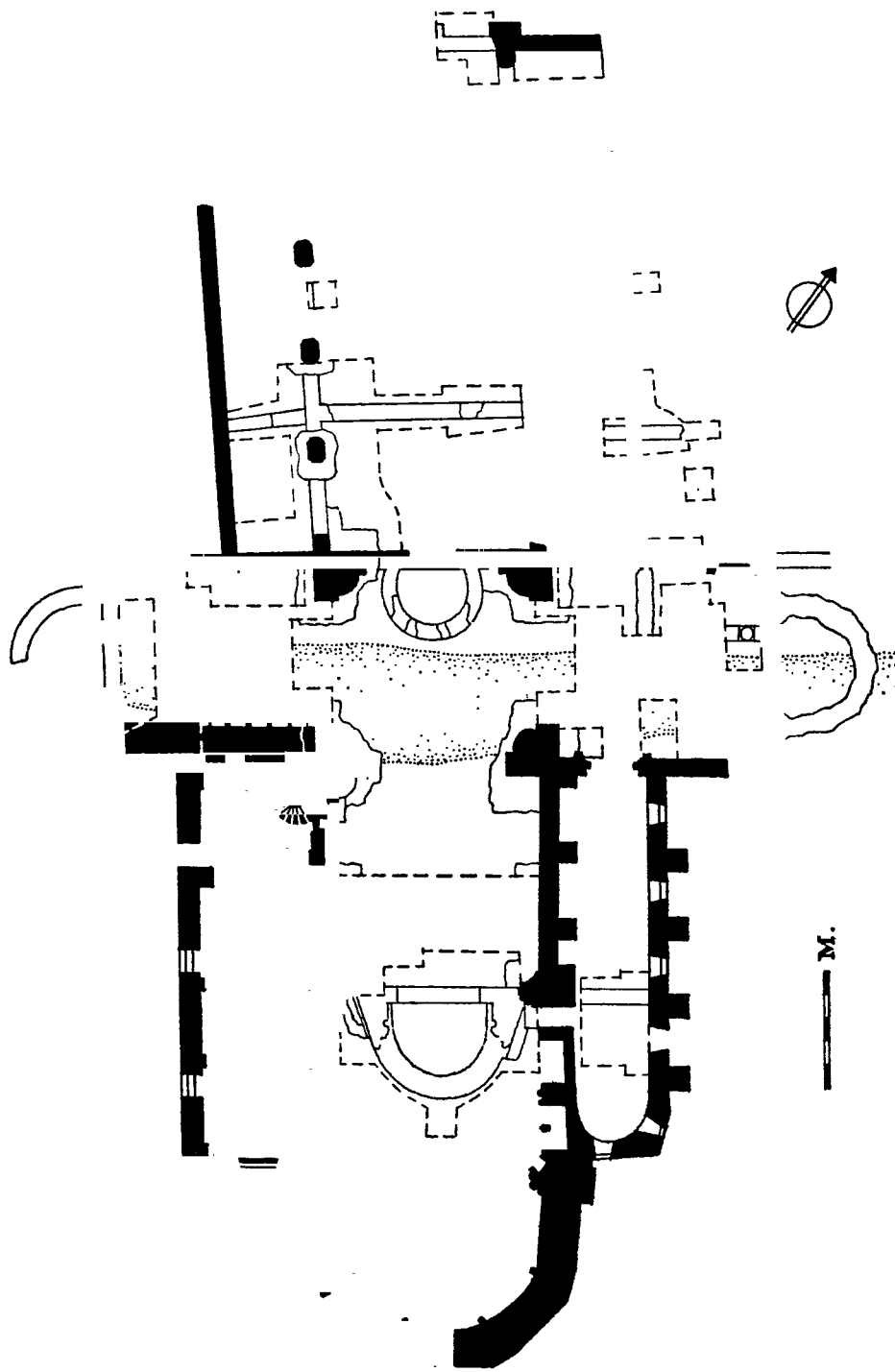


FIG. 1. GENERAL PLAN OF THE CHURCH OF ST. MARTIN AT ANGERS IN ITS PRESENT STATE, SHOWING EXCAVATIONS AND REMAINS OF EARLIER BUILDINGS

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vaulted construction, was erected slowly and with clear signs of interruption from about 1160 to 1200 or somewhat later.

The preceding description covers those parts of St. Martin's which still survive to a considerable height above ground level and which are, consequently, the most recent ; for in the general history of the site the tenth century marks no archaic period of beginnings, but a relatively late stage in a series of buildings whose débris now lie submerged for the most part below ground level. It is this series of constructions and reconstructions between the first and the tenth centuries which lends the site its most exceptional interest and which forms the subject of the present article. There is not space to describe in detail our excavations, running in some cases to a depth of fifteen feet below the modern city, whereby the series has been uncovered and correlated. Suffice it to say that the familiar techniques of surveying, stratigraphical recording, dating by coins, pottery, etc., have here been employed. The results, for the periods under consideration, are summarized in the accompanying sketches.

The plan (FIG. 1) of the church in its present state is here somewhat simplified by the omission of certain excavations and walls which are of secondary importance. The boundaries of our trenches are indicated by broken lines.

### ROMAN REMAINS

The Roman road can only be traced for the length of the transept and somewhat north of it because of neighbouring modern structures which render impractical the attempt to carry excavations any distance beyond the limits of the church. In spite of this handicap it has been possible to make out the corner of a large building which apparently presented a colonnade and steps toward the road. Conjectural elements in the plan (FIG. 2) of the Roman road and of the earliest Roman building are here indicated by broken lines. The purpose of the structure, which was solidly built of Roman small stone (*opus isodomum*), is not evident, but it seems to be of a monumental character and its formal front and location not far from the probable site of the Roman forum do suggest that it was a building of some civic importance. This is further borne out by the extraordinary amount of rebuilding and extension to which the structure was subjected, seeming to indicate the rapid changes and congestion at the centre of a growing provincial capital. It is not possible here to describe these changes in detail but in general the first building was restored after a fire, the road was raised fifty centimetres,

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an extension was later carried southward and eastward across the former roadway, a drainage canal was introduced, and ultimately an important series of walls was run out to the east. During this development the rise and decline of mason's procedure may be traced. In the earlier stages a superb technique of wall construction was developed, employing local quartzite boulders about ten centimetres across. These

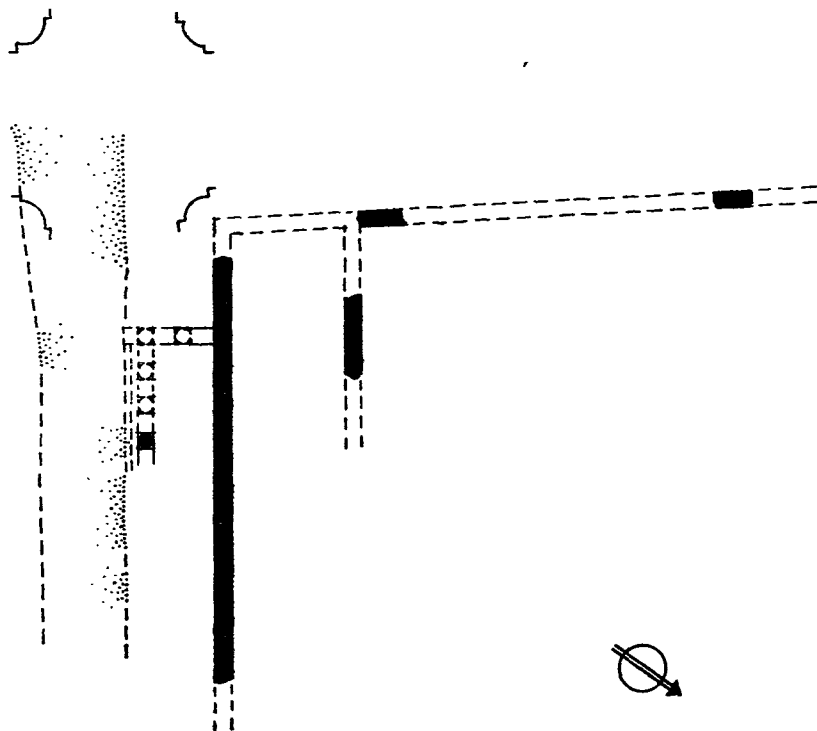


FIG. 2. REMAINS OF THE FIRST ROMAN ROAD AND THE EARLIEST ROMAN BUILDING WHICH HAVE BEEN UNCOVERED UNDER THE CHURCH OF ST. MARTIN AT ANGERS

FIGS. 2-4 are drawn to the same scale as FIG. 1.

were cracked once to give a flush face, set in an abundance of fine mortar, their round faces outlined by rectangular trowel strokes in the mortar, and the whole knit firmly by occasional bonding courses of brick. Later a decline in technique occurred ; the quality of brick and mortar deteriorated and trowel marks disappeared ; but the basic conception of a wall as a mass of small local boulders, trimmed only on the face by a single hammer stroke and floating in a rich mortar bath—

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essentially nothing but Roman concrete—continues right through the church constructions to the twelfth century and illustrates the extraordinary tenacity of Roman traditions in the Loire valley. The two roads are of similar boulders set in clay and dirt, their top surfaces worn smooth by traffic. As to the periods of all this complex, many more or less datable finds have come to light such as 'terra sigillata' ware, fragments of decorative fresco work, and a certain number of coins. The earliest coin found was of the reign of Augustus; the latest, of Crispus, dates about 326. The former probably indicates the period of earliest Roman work on the site; the latter marks one of the later stages, though not the last, and the entire area was brought down to a dead level of destruction and abandonment, which persistently recurs in our stratigraphy as mute evidence of the heavy tread of the barbarians; perhaps the Franks and the Saxons by whom Angers was twice burned in 471.

### THE MEROVINGIAN PERIOD

At some time shortly after the general destruction the area became part of a large burial ground which covered this part of Angers. At first the burials were Pagan, enclosed by slates loosely set in the earth, but soon there appeared a series of large stone sarcophagi, lacking ornament but carefully oriented with feet toward the east, and herewith the long chapter of Christian occupation of the site began. We have found only three of these sarcophagi undisturbed. Of these three, two contained nothing whatever except skeletons but the third held in addition some simple jewellery and that 'rarissime', a Merovingian gold triens, which was struck at Orleans in the reign of Dagobert I in the early seventh century. This particular sarcophagus occurred at a high level, clearly indicating that many of the stone series were anterior to it.

The earliest architectural remains on the site related to this period are the fragments of a small rectangular building, which later became the nave and choir of the church shown in FIG. 3. This earliest building had no apse or projections of any kind, its only elaboration being a transverse division of some sort at the point occupied by an arcade in FIG. 3. That this simple box-like little structure was erected as a church seems at least most probable since the ground level continued to rise with sarcophagus burials all around it, but ceased to rise within it; and a church, or perhaps a funerary chapel, appears the most likely structure to be erected for use at the centre of an actively employed graveyard.

## THE CHURCH OF ST. MARTIN AT ANGERS

By relation with the levels of the sarcophagus series, an early date is indicated for this building, possibly the first half of the sixth century.

A second stage in the development of the structure was marked by the addition of two annexes, which may perhaps be called 'porticus'.

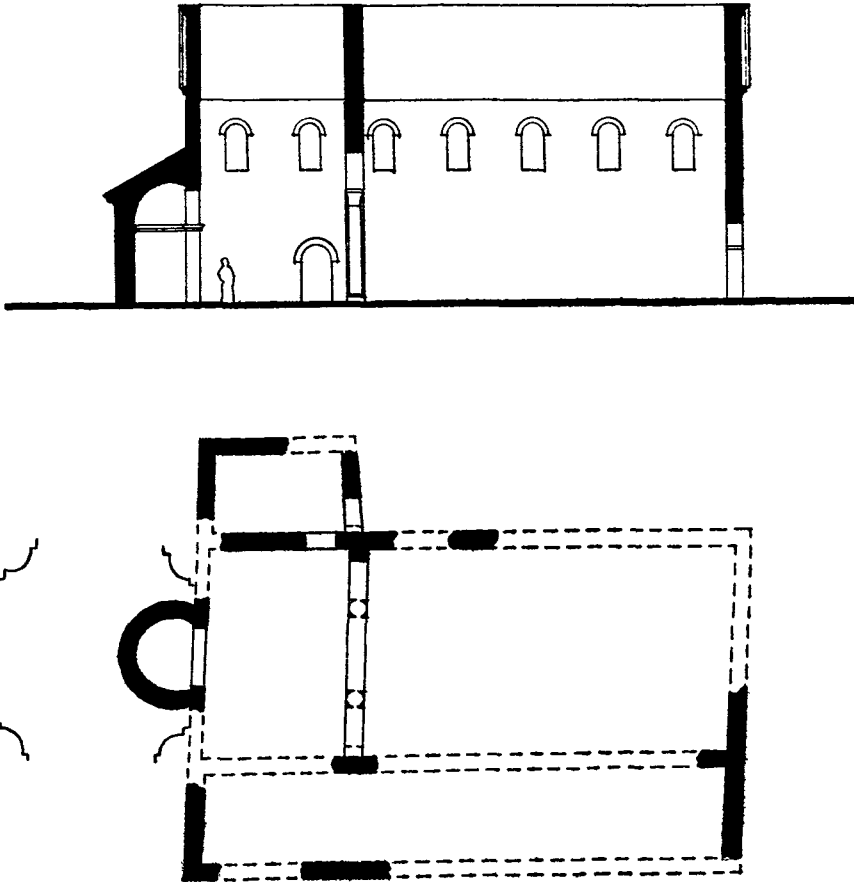


FIG. 3. PLAN SHOWING THE MEROVINGIAN REMAINS UNCOVERED BENEATH THE CHURCH OF ST. MARTIN AT ANGERS AND SECTION SHOWING AN ATTEMPTED RESTORATION BASED ON THESE REMAINS

On the north was a full length one ; on the south, a short one. No indication was found as to how the northern one communicated with the nave, nor as to the purpose of either. These alterations seem little later

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than the original construction and may therefore be assigned to the middle of the sixth century.

The building was brought to its greatest extent by a third enlargement. This consisted in the addition of a horseshoe apse applied to the eastern wall and the reconstruction of the transverse feature dividing choir from nave. The exact form of this feature cannot be determined. At least it was not a solid wall with a small door ; for what remains is a ' sleeper wall ' and this must have carried transverse arcading of some sort, whether borne on piers or columns. There is no means of knowing if this reconstruction repeated a similar arcading in the first structure or if a wall of some sort divided the original choir and nave. There is a strong probability that the north ' porticus ' was destroyed when the apse was built ; but this is not certain, and therefore I have included it in FIG. 3 which attempts, by means of broken lines, to complete the plan from known parts thereof. Above this I have tried to indicate a probable section. For its outlines and proportions I have followed certain Spanish and Kentish churches which offer strong analogies in general scheme. A comparison of levels suggests that this final enlargement of the Merovingian church was about contemporary with the dated sarcophagus, namely in the early seventh century.

### THE CAROLINGIAN CHURCH

At a subsequent period, while the Merovingian Church was still in use, an extensive enlargement was begun. The existing nave and choir were thrown together and were to serve as nave of the new scheme, which was to include a long transept terminated by apses, a choir flanked by aisles, and an eastern apse. That nave aisles were also intended is clear from the stratigraphy, which shows that these builders dug trenches to examine the old north ' porticus ' foundations, evidently with the intention of using them for the north aisle wall. But all these ambitious plans were arrested before the new walls had risen a metre above ground and at the same time the old church was destroyed to its foundations, its broken masonry scattered, and the whole catastrophe sealed over by the level mud stratum of a tranquil abandonment. There is no direct evidence as to the occasion of this destruction. However, it may reasonably be attributed to the Loire Vikings who desolated the entire valley in the middle of the ninth century and actually settled themselves for a year in Angers, where Charles the Bald and the Bretons laid formal siege to them in 872 with a great circumvallation. A church

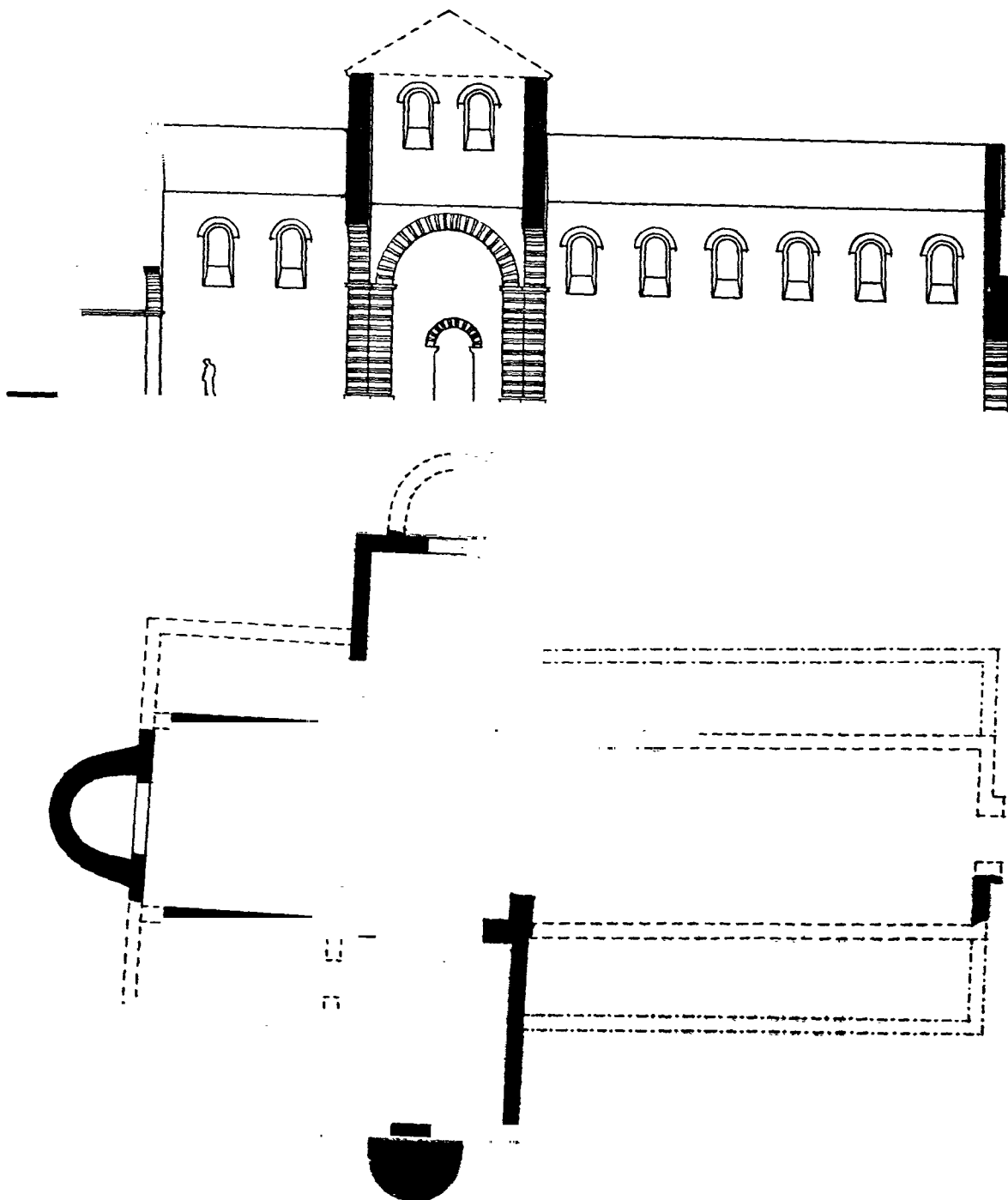


FIG. 4. PLAN SHOWING THE CAROLINGIAN REMAINS UNCOVERED BENEATH THE CHURCH OF ST. MARTIN AT ANGERS AND SECTION SHOWING AN ATTEMPTED RESTORATION BASED ON THESE REMAINS

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near the city walls could hardly survive such events. If this conjecture be true, then the church enlargement which had been under way a short time before the destruction would fall within the Carolingian period.

After a considerable lapse of time a reconstruction of the building was undertaken, following out exactly the enlarged scheme which had previously been laid down. The precise period of this cannot be determined, but somewhat after the Viking invasions there followed an era of relative peace and prosperity in Anjou under Count Fulk II, 'the Good', who ruled from 942 to 960, and who was a canon of St. Martin's at Tours and an ardent devotee of the Saint; and the revival of St. Martin's at Angers may reasonably be assigned to the period of this prince. In any case work was resumed sometime during the tenth century; for a document of 1020 describes a subsequent restoration of the building. In FIG. 4 I have indicated the main outlines of this structure, which is still entitled to be called 'Carolingian'. The broken lines in the plan indicate conjectural elements. The nave aisles are differently noted in order to show that they were never built in this period; in fact they were not completed until the later eleventh century. Yet they formed part of the original Carolingian scheme and probably it was always intended to build them. In the section many of the parts still survive as shown, or are indicated by later alterations. The most doubtful matter is the termination of the tower. I have indicated it with a simple pyramidal roof which was the form used in later reconstructions of the church and which occurs elsewhere in the region at this period. The building which thus reveals itself is without the aspiring and ungainly force of the Germanic character which finds expression in the great Rhenish churches of the Carolingian period, and it shows none of the gropings after East Christian decorative and structural forms which can be seen in the contemporary architecture of North Italy and elsewhere. In the place of either of these qualities St. Martin's, in its Carolingian phase, beautifully embodies the third element of medieval architecture. Just as its walls are actually founded on Roman walls, so equally does its design rest upon the classic traditions of power in repose and of elegantly simple form which survived to a remarkable degree in the Loire region, not only in architecture, but also in manuscript illumination, and in poetic composition.



# Dendrochronology

by F. MARTIN BROWN

**D**URING the first years of this century an astronomer, Dr A. E. Douglass, started a series of examinations of the annual increment in trees just south of Flagstaff, Arizona, to see if the cyclical nature of sun-spot appearances was reflected in tree growth, through their influence on climate. He found that there was a rather high correlation between tree growth and sun-spots in the living trees he examined. In order to extend his studies into the past—beyond the 500 years recorded by living trees—he collected material taken from beams in the old Spanish Missions that dot the southwestern United States. He had found that it was possible to identify certain characteristic sequences of tree-ring widths with certain years, and thus project into the past his chart of tree growth from timbers cut at an unknown past date. In doing so he discovered a technique that has founded a new branch of science—dendrochronology.

From the old Missions he turned his attention to the still older Pueblo villages that have been occupied to the present time. It was when he began working with these aboriginal structures that the archaeologists excavating in the region began to realize the possibilities of his methods for dating the erection of ancient buildings. In 1923, under the National Geographic Society, an expedition was put into the field to recover from many of the ruined sites in New Mexico, Arizona and Colorado timbers that might date them. At the time of this expedition his chart of information extended back only to the 13th century or so. Many archaeologists felt rather doubtful that these long-abandoned sites could supply records so recent. The beams which he had from archaeological sites formed a sequence of about 580 years that did not overlap, and thus did not connect with the chronology extending back from modern times.

The story of Dr Douglass' search for beams that would close the gap between the Flagstaff sequence, which extended from modern times to 1280, and the several floating sequences that had been derived from beams taken out of early sites is as exciting as a mystery story. A beam taken from the ruin at Showlow, in 1929, yielded a ring sequence

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that connected a long floating series of prehistoric material with the Flagstaff series, so that the Showlow beam and the floating sequence could be dated in Christian time. This long, dated sequence was then named the Western Pueblo Chronology.

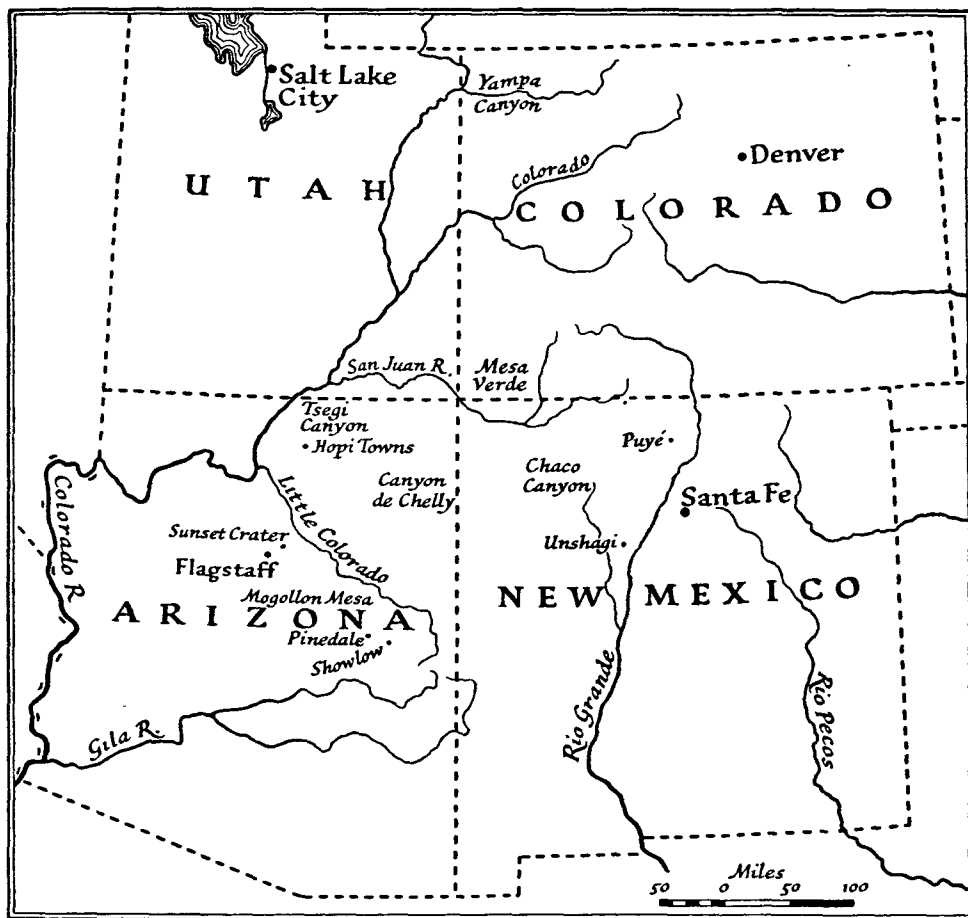
There still remained, however, a large, charred beam from Johnson Canyon, which did not overlap any of those collected on the nearby Mesa Verde, and another early beam, BE-33, showing eighty-one rings, which contained near its periphery a striking sequence of rings that could not be found in any other of the floating chronologies. Mr Morris collected a large roof beam from a site which he described as early Pueblo in Mummy Cave, near Canyon de Chelly. This contained the same peculiar signature as BE-33, and the floating sequence containing it was thereafter called the EPD—Early Pueblo Dating—chronology. Since the EPD sequence, built up to cover a period of about three hundred years, and the JCD—Johnson Canyon Dating—series, extending over a similar period of time, were not linked together and did not tie in with the dated sequences, the search was stimulated to find beams that would close the gaps. In 1931 Dr Hawley dated a beam from Chetro Ketl in Chaco Canyon. Its inner rings extended the dated sequence backward to A.D. 643. This large beam closed the gap between the Western Pueblo Chronology and the JCD sequence, and the Johnson Canyon material was identified as evidence of construction in that region in the late 7th century.

The search continued, and again Mr Morris' timbers from Basket-Maker and early Pueblo sites were carefully scrutinized. It was not until 1933 that one of these beams was found with the EPD signature near its centre. The outer rings distinctly showed ring sequences that tied together the EPD and the JCD series, and the EPD signature of eight rings was shown to be A.D. 423 to 431 (FIG. 1, p. 424). Since then the search has been continued and as a result the earliest sequence to receive a date begins in A.D. 11.

At present there are two major chronologies based upon the study of tree rings. The original one, begun by Dr Douglass and extended by him and his students, is usually known as the Flagstaff or Western Pueblo Chronology and extends back to the beginning of the 1st century. Through the studies of Dr Emil Haury, this has been shown to be workable in southern Arizona as well as in the entire San Juan drainage where it was developed. As yet, attempts to adjust it to the northern drainage of the Colorado river have been unsuccessful. Trees brought out by the author from that region do not have the same sequence of

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growth-characteristics as those from the more southern area. The ruins discovered on the northern tributaries of the Colorado river will probably not be dated until an independent chronology is arrived at for that region.



The second dating scale is being developed by Mr W. S. Stallings, jr., at the Laboratory for Anthropology in Santa Fe, New Mexico. It applies to the Rio Grande drainage system and is distinct from the Western Pueblo Chronology in many respects. Mr Stallings has been able to extend his chart well into the closing centuries of the first millennium A.D.

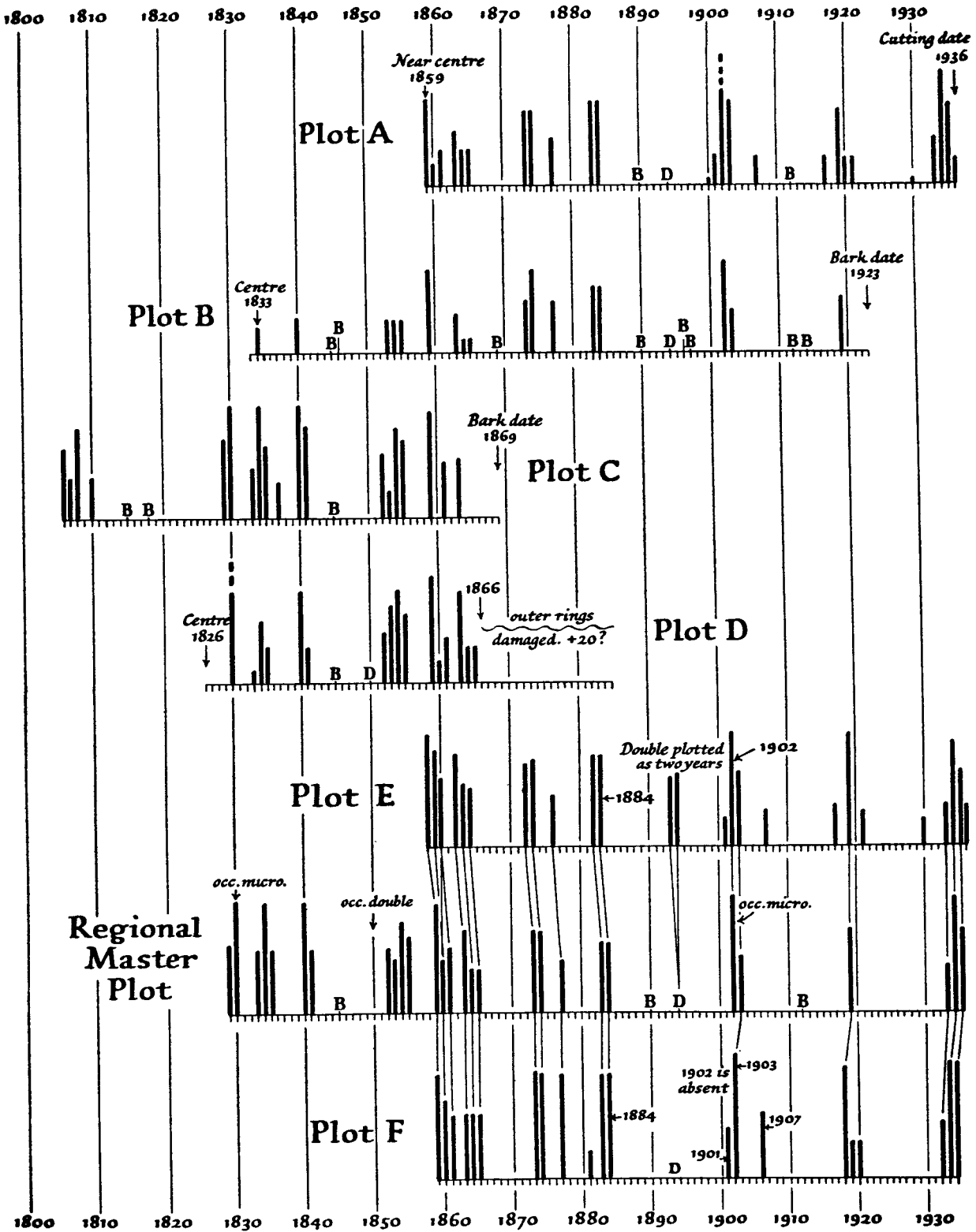
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The task of developing a chronology is arduous and long. Its inception is the gathering of a great many specimens from living trees and the noting of the sequences of tree ring widths. These are plotted, for each specimen collected, on a piece of cross-section paper, the width of a ring being expressed rather in relation to the width of contiguous ones than by actual measurement. Thus the local conditions making for general rapid or slow growth are eliminated. When a period of years is represented from twenty or thirty specimens, these records are synthesized into a master-plot which represents the average conditions for that particular period of years. This is illustrated a little farther on.

In devising these charts, it has been found by experience that drought years furnish the important keys and thus it is that the leanness of the rings is recorded rather than their stoutness. So a ring representing a year of extremely little growth is marked on the chart by a long line. Occasional rings are found to be lacking entirely or partially in one or two specimens, while in others these rings are of microscopic narrowness. Such rings cause considerable trouble and are recognized only when many specimens covering a period of years have been examined. Occasionally a growing season has been such that a narrow band of compact cells is formed within the year's increment and a single year-ring gives the appearance of two rings. Such occurrences must be studied and carefully noted as 'doubles'. Otherwise, a year might be falsely interpolated into the chart. FIGURE 2 (p. 424) shows these two types of anomalous growth which in the hands of a tyro may lead to deceptive results.

Let us suppose that we are starting to develop a dendrochronology for a region. A great many increment borings have been gathered and a number of cross-section cuts have been taken from timbers used in the construction of cabins and from some old mine buildings. From an analysis of the increment borings we can get an idea of the variation in the width of tree rings for a period extending from the time the borings were taken back into the past.

On the accompanying page of drawings, plot A represents the data derived from what seems to be one of the sensitive trees. From it we can see that there have been alternating periods of drought and moisture. Between 1873 and 1884 there is an interesting arrangement of drought years, that may serve for identification. Also the ring representing the growth for 1902 is visible only under a hand lens and may be called a microscopic ring. It is represented on the plot by a long line continued



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with dashes. 1890 and 1912 were years during which excessive growth was put on by the tree. They are marked B. In 1894 the growing season was interrupted, probably by a dry hot period which caused the formation of a double ring. It is marked D.

Let us suppose that our next specimen, B, came from a rather recently constructed cabin. The plot shows the arrangement of narrow and broad rings but, as yet, no date can be assigned to any of them. Comparing this plot with A, we find that the signature of 1873-84 is at once recognizable, near the middle of the plot. When these signatures on A and B are placed in conjunction, the drought years of B coincide throughout with those of A, and the double of 1894 falls in its proper place. Plot B, however, does not show all the dry years that are found on plot A, and, in addition, it does show more years of better than average growth. This means that the tree from which sample B was derived was growing in a location more favourable for its development than was tree A. Plot B might be considered somewhat complacent, although it is still good enough to be used for deriving a date. From the plot we see that the tree started to grow in 1833 and was cut in 1923. It has extended our chronology backward about twenty-five years.

Plots C and D, let us suppose, represent sections of logs taken from an old mining camp. On specimen C the bark is preserved, but on specimen D the outer part of the log is not preserved and there is no exact way to get a cutting date. Comparing C with D, we find that they fit rather well. There are, near the outside of each of them, four successive years of drought, then three years of normal rainfall, followed by three more dry years alternating with periods of moderate precipitation. If we place the four drought years in conjunction, there is fair agreement between C and D. Plot C when placed against plot B does not fit very well but it seems quite probable that the group of four drought years represents the period 1852-5. When C and D are taken together, and are studied with A and B taken together, it is apparent that the seven years, 1859 through 1865, which have a distinct pattern on A, represent the outermost group of drought years on plot D; and so the first of this last pattern is assumed to be 1859. However, a further search for specimens covering the overlap is imperative, before this assumption can be taken to be true. Such a search must be made for a specimen that includes the 1873-84 signature and what appears to be a distinct pattern from 1830 to 1841, clearly visible on C and indicated on D.

Below plot D, on the page of illustrations, is a master plot for the

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region, derived from the four samples given. On it the consistent years of drought are carefully plotted. Those rings that appear to be microscopic on it are marked 'occ. micro.'. The rings that are consistently broad are marked on the master plot with a B, those that are consistently double with a D, and those that occasionally are double 'occ. double'. As more specimens are studied and the position of drought years verified, the master plot will be more accurate and will extend further into the past.

The two troublesome types of rings, double and absent, and the method used for their detection are represented on plots E and F. In plot E we have an example of a double that, inadvertently, was plotted as two separate years. If we compare plot E with the master plot, we shall see that the 1873-84 signature and the drought years, 1902, '19, '33, '34, '35, can be made to coincide with those of the master plot only when plot E is decreased by one year between 1885 and 1900. On E during this period there appears a pair of drought years, one of which coincides with the constant double of 1894. This immediately explains the extra year, and re-examination of specimen E will reveal that what have been considered two annual rings at this point are the two parts of a double. The false ring is irregular and fuzzy in definition (see FIG. 2, p. 424).

Plot F shows what happens when a plot is made of a specimen in which for one year no visible growth occurred. When the 1873-84 signature is placed in conjunction on the master plot and plot F, the group of drought years previous to the signature falls into line. There is good coincidence through the early years of the 20th century, but the dry year, 1919, has shifted into the position 1918 on F and the three dry years, 1933-5, have also shifted and are one year out of place. Thus there must be an error in our plot somewhere between 1884 and 1919. Such an occurrence might be accounted for by a year missing from plot F. An examination of the master plot and specimens A and E indicates that in all probability in specimen F the growth ring for 1902 is absent, since its interpolation will properly place the year 1907 and those years following it. Thus it is possible, when a sufficient series of specimens is studied, to recognize rings that have been omitted and double rings that have been plotted as two years.

The above imaginary series of specimens has been made to contain many of the interesting features of tree rings in a very brief period of years, for the purpose of showing the techniques involved.

The influence of microclimatic conditions upon the trees is clearly

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recorded in their rings of growth. By experience and definite experimentation certain trees have been found to be complacent in regard to weather conditions, and to show very little difference in increment between dry years and wet years. Such is the condition that is met with in trees that are growing in valley bottoms and in places where their root systems may extend into a constant supply of underground water. Trees that yield the best material for tree ring work are regularly shaped, mature trees growing in the open on thin soil, rather high on the sides of steep slopes. Such individual trees are wholly dependent for their growth upon rainfall, not upon an underground source of water. Fortunately, conditions in the American Southwest provide that most of the trees grow on such slopes or in very porous soil and, therefore, yield rather fine records of past climate.

Mr MacGregor made an interesting study of the rate of growth of the coniferous trees in the volcanic ash near Flagstaff, Arizona. He discovered that the trees growing in clay, the result of the decay of an ancient ash-fall, showed great variation in the width of the rings. Trees growing in those parts of the countryside most deeply covered by a more recent ash-fall showed increments four times as great as those growing on soil bare of ash. However, the trees growing in the ash-free region yielded far more easily read records of the weather, and showed great sensitivity to slight fluctuations in the rainfall. The rapidly growing trees in the deep ash lost many of the fine distinctions readily discernible in the year-to-year record of the more slowly growing trees.

Before embarking on the task of dating a ruin, it is necessary for the dendrochronologist to be conversant with the appearances of complacent and sensitive records from the region surrounding the site to be dated. The procedure in dating a ruin is not too difficult once a good working knowledge of tree rings has been gained, but it is rather tedious.

Specimens of all the beams available from the site are collected. Each one is carefully identified as to the precise location from which it came in the structure. These specimens may be complete cross-sections or one-inch increment borings such as those taken in living trees. In the laboratory these are carefully cut along a radial line with a very sharp knife, preferably a razor blade. It is necessary to take great care not to crush any of the cell structure of the wood. The specimen is then examined by the aid of a hand lens, and the relative widths of the rings are plotted on cross-section paper in their proper sequence, the outermost rings being represented at the right hand side of the plot. This specimen plot is then slid along the master plot until a satisfactory



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match is made between the growth sequences shown in the two charts. When such a point is reached, it is possible to assign a definite date to the outermost line of growth in the specimen. If the specimen has not been damaged and the bark is still present, that assigned date is termed the bark date and is considered the cutting date. When the outer layers have been damaged, such dates are followed by +x and may be used only if that is borne in mind.

When all the timber specimens from a single room have been dated, the cutting date of the majority of them is taken to be the year in which the room was constructed. Occasionally in such a series of specimens a timber is found bearing a much earlier cutting date, indicating that it had been removed from an earlier structure and re-used. Many of the earliest dates in the ruins of the Southwest have been derived from such re-used timbers. More frequently a specimen or two will yield a much later date than the assumed date of construction. This is taken to indicate that for some reason or other it was necessary to replace the timber. Such replacement timbers give us an indication of the length of time the structure was occupied before being deserted. As an example of construction history let us take site NA 538 of the Museum of Northern Arizona, a single-room pit-house. Eleven timbers dated by Dr Douglass and Mr MacGregor yielded the following cutting dates: 1156+x, 1182, 1183 four beams, 1184 two beams, 1192 two beams, 1260. Mr MacGregor estimates the building date as 1185 with replacements at 1193 and 1261.

In a large structure it is possible, by dating all the rooms, to follow the growth of the building throughout the period during which the site was occupied. The accompanying diagram (see page 419) is copied from the plan of Spruce Tree House in Mesa Verde National Park, published by Fewkes as plate I, Bulletin 41, Bureau of American Ethnology, 1909. The numbers are the dates assigned to the construction of the various rooms by Mr Harry T. Getty, in the first report of his study of this ruin (*The Tree Ring Bulletin*, 1935, volume 1, page 29). The lettered circular structures are ceremonial rooms called kivas. The two, unlettered, circular rooms may have been towers such as are found in Cliff Palace. There is no indication that they were ceremonial rooms.

Of the seventy-one secular rooms six in the northern part of the settlement were three stories high, twenty-nine were two stories high and thirty-six were but one story. In Fewkes' report he considered those rooms grouped around kiva A to be the first constructed. As

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yet the only date assigned in this part of the site is to the second story of room number two, which was built in 1275 and is one of the most recent in the entire settlement, according to Getty's dating. Whether Mr Getty will be able to bear out Dr Fewkes' idea depends upon further study of timbers from that region of Spruce Tree House. So far, the earliest rooms dated lie just east of kiva D. There, construction seems to have extended to the south until the large block of central rooms was completed. From that point, construction seems to have extended to the peripheral rooms of the ruin.

Studies of the masonry show that the rooms directly east and south of kiva E are the best constructed in the entire cave. These were built between 1244 and 1254. From the few rooms that have been dated, it seems that there was a gap in construction of twenty years between 1254 and 1274. When all the rooms have been studied, it is expected that this period will prove to be one during which second and third story construction was being actively pursued.

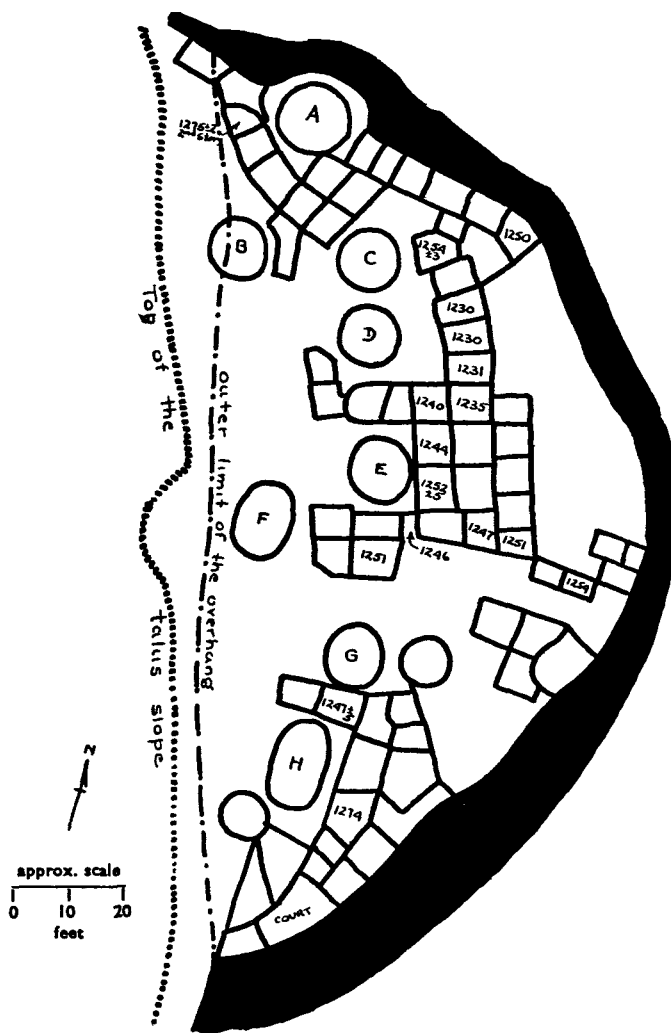
Since the village probably represents eight groups of living-rooms, each group associated with a ceremonial chamber, dates derived from these circular structures will be of great assistance in determining the expansion of the settlement and the periods during which each unit group was erected. Thus far no kivas have been dated. When similar studies have been carried out on a large number of the South-western ruins, it is to be expected that we shall have a much better idea of community organization and of the stages in the development of a cliff-dwelling.

It may be of interest to note at this point that the earliest cutting date found in the timbers of Pueblo Bonito was read by Miss Hawley from a timber taken out of the third story of that building. Obviously that old beam had come from a room abandoned before the present structure was built.

Further use for tree rings has been found in dating pottery types, through the rooms in which they are found ; and information gained from this has, in turn, been used in the study of refuse heaps. Recently Dr Antevs and Dr Senter have applied information from dated pottery types to a study of deposition and erosion in Chaco Canyon near Pueblo Bonito. In 1936 the University of New Mexico drove a trench to the depth of eighteen feet in the Canyon bottom. The walls of this trench were carefully studied by Dr Antevs for erosion surfaces and by Dr Senter for shards. Above the sterile sand at the bottom

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of the trench and separating it from a rather thick deposit containing Escavada black-on-white pottery, there was an erosion surface. Since we know from material recovered from dated rooms that Escavada



PLAN OF SPRUCE TREE HOUSE, MESA VERDE, NATIONAL PARK (see pp. 417-18)

black-on-white was manufactured at this site between A.D. 850 and 950, the erosion surface was assumed to have been formed previous to 950. During the years 900 to 907 climatic conditions, according to

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the tree rings, were such in the Chaco that an erosion surface might form ; and so the period 900-907 is assigned to erosion surface number 1.

Separating the Escavada horizon from one containing Gallup and Chaco black-on-white was another erosion surface. These two wares were manufactured from about A.D. 950 to 1130, and the period within that span of years most likely to form an erosion surface is 1035 to 1041 ; so those years are assigned to erosion surface number 2. As we accumulate more definite information about the time during which certain types of pottery were in vogue, the geologists will have a more accurate scale for dating the erosion changes that have taken place in the topography of the Southwest.

It might be of interest to give at this point the actual dates for the manufacture of some of the other wares. The earliest kind found in the Southwest was made by the people of the Basket-Maker III horizon. Timbers from many of the caves excavated by Mr Earl Morris and found to contain early pottery give us a range of from A.D. 600 to 750 for the manufacture of this early ware. This was followed by a black-on-white pottery. At present far too many types of this ware are recognized. Of the more important, those under the general classification of Chaco black-on-white were manufactured from about 850 to 1150, the Mesa Verde from 1050 to 1275 and the Kayenta from 1100 to 1275. These three were developed in the San Juan drainage basin and might well be given a generic term—San Juan black-on-white. They vary primarily in the techniques used to apply the black decoration on the white slip. In the Rio Grande Valley black-on-white potteries have been found associated with timbers dating from 1106 to 1594. The so-called Santa Fe and Gallisteo black-on-whites apparently were the earliest types developed in the region. At the ruin Unshagi, which has yielded dates 1572-94, Jemez black-on-white is found associated with a late type of glazed ware.

Polychrome wares have been manufactured since about A.D. 1100. From the data at hand it would seem possible that two neighbouring villages might well be placed culturally far apart on the basis of their pottery and yet actually be contemporaneous. We shall not know the full history of the development of pottery in the Southwest for many years to come. It is well that, in sites being excavated today, large sectors of each are being left untouched for the archaeologist of the future, whose knowledge of the Southwest will be less incomplete.

At Pinedale, Arizona, excavations showed two distinct types of polychrome pottery. The uppermost is called Pinedale and overlays an

## DENDROCHRONOLOGY

equally well-developed type called St. John polychrome. After timber specimens were dated from these two pottery horizons, it was shown that they represented two periods of occupation separated by a lapse of about sixty years. The earliest horizon, from the rooms of which dates ranging from 1132 to 1231 were derived, contains St. John polychrome. The later occupation, during which Pinedale polychrome was manufactured, lasted from 1293 to 1330. Since these ranges of dates are represented by a great many pieces of wood and therefore approximately limit the periods of occupation, we can assume that the early people evacuated the site sometime during the third decade of the 13th century. Whether they moved back during the last years of that century or whether another group moved in cannot be decided at present.

However, the beginning date for the rehabilitation, 1293, is an interesting one. To appreciate it one must know that the trees from the San Juan drainage, some distance north, bear the evidence of a prolonged drought which began in 1276 and which was not relieved until 1299. This period of greatly reduced rainfall in an already semi-arid region readily explains the sudden desertion of such admirably situated sites as are found on Mesa Verde and in Tsegi Canyon.

In these two regions the people seem to have been at a peak of development when the drought set in. Their corn fields, parched and unproductive, could no longer support more than the smallest fraction of the population. We do not know exactly where these people wandered. There is, however, some indication, drawn from changes in the designs on pottery, that they moved to the south and to the east. Rehabilitation of abandoned sites also offers a few clues. For instance in Canyon de Chelly, Sliding Ruin, which had been abandoned in the closing years of the 10th century, shows evidence of re-occupation with new construction in 1284; and in the Rio Grande Valley a number of sites have been found, but not dated, from which pottery has been recovered that shows a direct influence from the Mesa Verde region. Terminal dates in the Mesa Verde buildings are very close to 1275 and, as tree-ring work progresses in this region, it is quite probable that little or no evidence of new structures will be found after that date. That the Tsegi Canyon was deserted at a little later time is evidenced by the terminal date of 1286 for the two largest and best known ruins, Keetseel and Betatakin. It might well be, therefore, that the second occupation of Pinedale was by wanderers driven from their more northern homes by the great drought.

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Thus far we have found that the San Juan region was occupied from about the middle of the 4th century through the closing years of the 13th; that the area drained by the Little Colorado has been continually occupied by sedentary people since the close of the 7th century. It is in this region that some of the longest-occupied towns of North America are situated. For instance, Oraibi, one of the Hopi towns of today, has yielded timbers that were cut in 1370. The dated ruins of Mogollon Mesa and of southern Arizona give us a range of dates from 896 to 1385. In the eastern part of the Pueblo region, the area drained by the Rio Grande and the Pecos river has been occupied since at least the beginning of the 12th century. Exploration in this region will without doubt yield sites with much earlier dates. The Pueblos of today that dot the valley of the Rio Grande are inhabited by direct descendants of these early Americans.

If we examine the data from another point of view, it becomes apparent that the Basket-Maker period extended from before the middle of the 4th century to the closing years of the 9th century; that the Pueblo I period developed in the closing years of the 7th century; and that the transition from it to Pueblo II took place around 875. The classical Pueblo III period had its inception at around 1000, and the great drought of 1276 to 1299 brought it to a close. The period of decline from then until modern times is usually broken into two periods separated by the Spanish Conquest, although the influence of the Spaniards was really very little until the beginning of the 18th century.

It is quite probable that the range of dates will be extended somewhat, but these extensions will not materially affect the conclusions that have been drawn, namely :—That the various Pueblo stages followed each other rather rapidly; that the Basket-Maker period, formerly considered to be much more ancient than the Pueblo, was contemporaneous with the earlier of the Pueblo settlements. The only thing that prevents our assuming it to be an early phase of the later culture is that the Basket-Makers were long-headed people, while the Pueblo people are round-headed.

However, Dr Haury recently discovered in the Mogollon region a Basket-Maker-like culture of round-headed people that may have been the forerunners of the southern Pueblo people. The type site of the Mogollon culture carries a date A.D. 896 to 908. This is later than the date of the Pueblo I remains in the vicinity of Flagstaff, which seem to have existed from at least 680 to 875. A problem to be solved is whether the Mogollon site is peripheral and, therefore, might be expected

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to have a late date, or whether it represents a migration of people from the east who, upon their arrival in the Southwest, added Pueblo and Hohokam characteristics to their own culture.

So we see that Dr Douglass' method has compressed a sequence of cultures formerly thought to extend over several thousand years into about 1500 years. Today a half-dozen of his students are applying his methods to archaeology. Others are busy studying the records in an attempt to correlate time more closely with climatic conditions and to discover if possible a method whereby weather conditions may be predicted for a land unusually dependent upon rainfall.

A discovery of great importance to geologists was made by the workers at the Museum of Northern Arizona. For some years archaeologists have known that the ash-fall from the last eruption of Sunset Crater, near Flagstaff, destroyed house sites of the Pueblo I era. After Dr Douglass had extended the Western Pueblo Chronology beyond the 7th century, it became possible to assign dates to these destroyed sites. It seems that they had been erected in the early years of the 9th century. Mr MacGregor set about a systematic study of the hundreds of sites in the region and has proved conclusively that the last great volcanic eruption took place between 860 and 910 and very probably within a few years of 885. This was rather startling news for the geologists, for, although they knew that Sunset Crater had been recently active, they had been applying the word recent in its geologic sense and had no idea that the eruption had occurred in historically recent times. This discovery has caused considerable revision of geologic theory concerning these states.<sup>1</sup>

Before the development of dendrochronology, the placement of the Pueblo ruins in some sort of sequence depended almost entirely upon pottery. The precise dating derived from tree rings has by no means replaced this procedure. In many respects tree ring dating has clarified it, but in others it has left us in a state of confusion. And not until a great many more sites are dated will that confusion be eliminated. The Rio Grande site, Puyé, is an example of how tree rings occasionally wreak havoc upon the theories of archaeologists. A careful search of the old Spanish chronicles shows no reference to this site being occupied

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<sup>1</sup> It seems to me, from the finds that have been made, that the geologists must greatly shorten their estimates of age of recent formations in North America. The discovery of modern man incontestably associated with extinct animals in the region of the Southwest can no longer be taken as an indication of great antiquity for man, but rather as an indication of the survival of certain forms of animals, now extinct, to rather recent time.

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at the close of the 16th century, when the conquistadors were moving through the land. The pottery found by Dr Morley during his excavation is largely glazed ware, but there is a good representation of earlier and later types. The whole picture is such that it is perfectly reasonable to believe that the site had been abandoned several centuries when the Spaniards arrived. Mr Stallings, however, found that the timbers recovered from the ruin dated from 1507 to about 1565; and it is quite probable that there were Indians living there as late as 1600, since one timber yielded a doubtful record of 1594. Whether the Spaniards knew of the village but considered it too unimportant to record we shall probably never know. But tree ring dates have corrected a misapprehension concerning it.

Another, more general type of pre-tree ring error might well be given. The generally estimated age of Mesa Verde ruins, for instance, was at latest the early years of the Christian era, and by many this site was thought to have been occupied no more recently than the close of the second millennium B.C. When Dr Douglass announced that the major building operations in that great settlement did not stop until the latter half of the 13th century A.D., it came as a great surprise and even caused some archaeologists to doubt the accuracy of his methods. However, he was certain that his dating was correct, since in no instance had he found repetitive sequences of tree ring widths. The trees of that hot arid land have carried with them such an accurate record of the vagaries of weather that today we are able to date bits of charcoal as well as timbers, and thus date the buildings whence they came.

### APPENDIX ILLUSTRATING (SEE FIGS. 3-8)

#### RATES OF GROWTH, REGIONS AND SKELETON PLOTS

FIGURE 3 is a photograph of two radial pieces of piñon logs brought out from the Yampa Canyon. These huge trees were selected because they were growing in locations that indicated that their ring sequences would show some sensitivity to climatic changes. The reason for cutting was that logs had been recovered from a late Basket-Maker or early Pueblo site in the Canyon, and it was thought best to have some recent timbers to compare with the Western Pueblo Chronology, based on trees growing some 300 miles to the south, the application of which was doubtful so far north. Mr W. S. Stallings, jr. found that these northern logs did not show sufficient correlation with the Western



# PLATE I



FIG. 1. FPD SIGNATURE IN BE-33. A.D. 423 TO 431. FIRST  
RECOGNIZED AS PART OF AN EARLY CHRONOLOGY IN  
1927. DATING ASSURED IN JULY, 1934 (see p. 410)  
*from Douglas, Tree-Ring Bulletin*

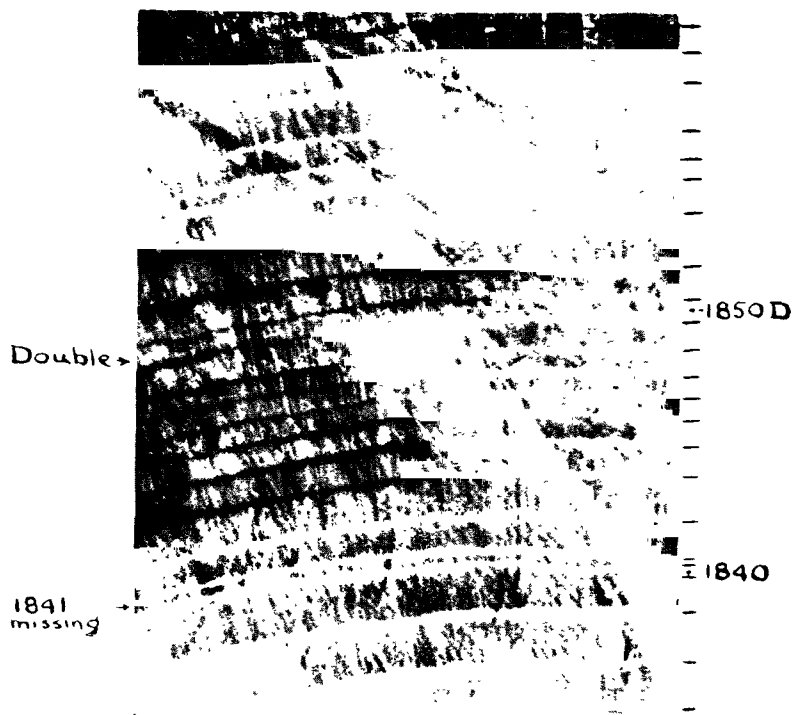


FIG. 2. TYPES OF ANOMALOUS GROWTH. DYP I, 1858-1837 (see p. 411)  
*ph. F. M. Brown*

# PLATE II

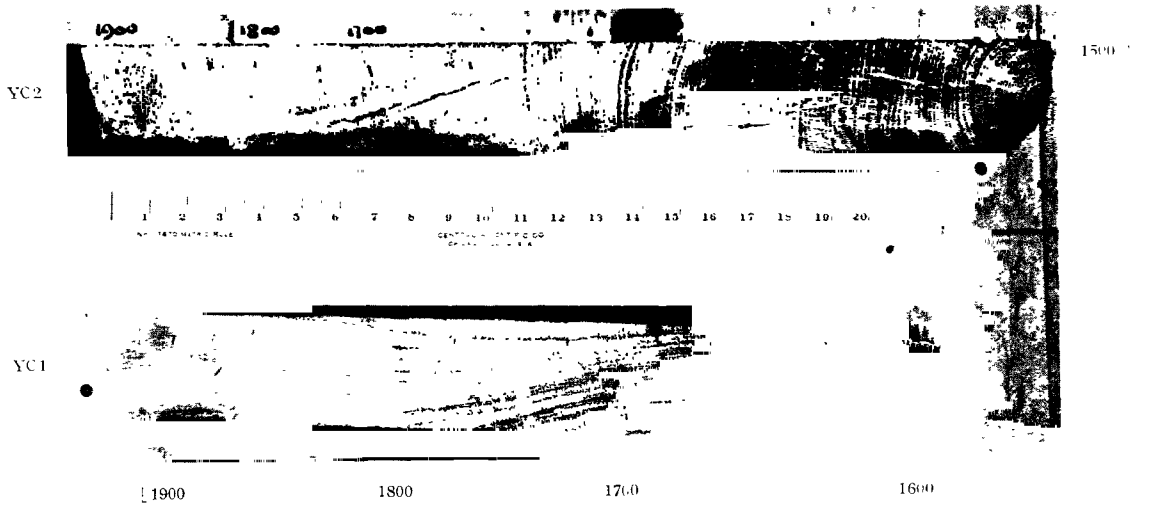


FIG. 3 RADIAL PIECES OF PIÑON LOGS FROM YAMPA CANYON (see p. 424)

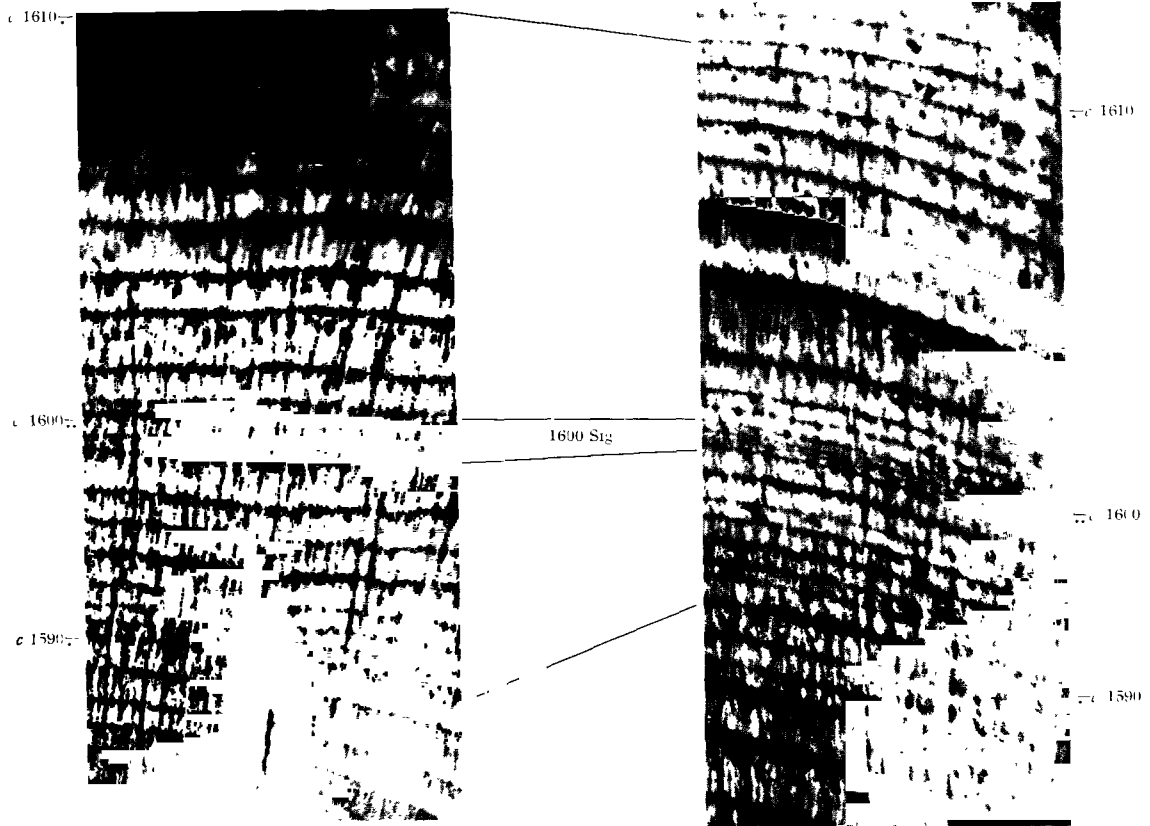
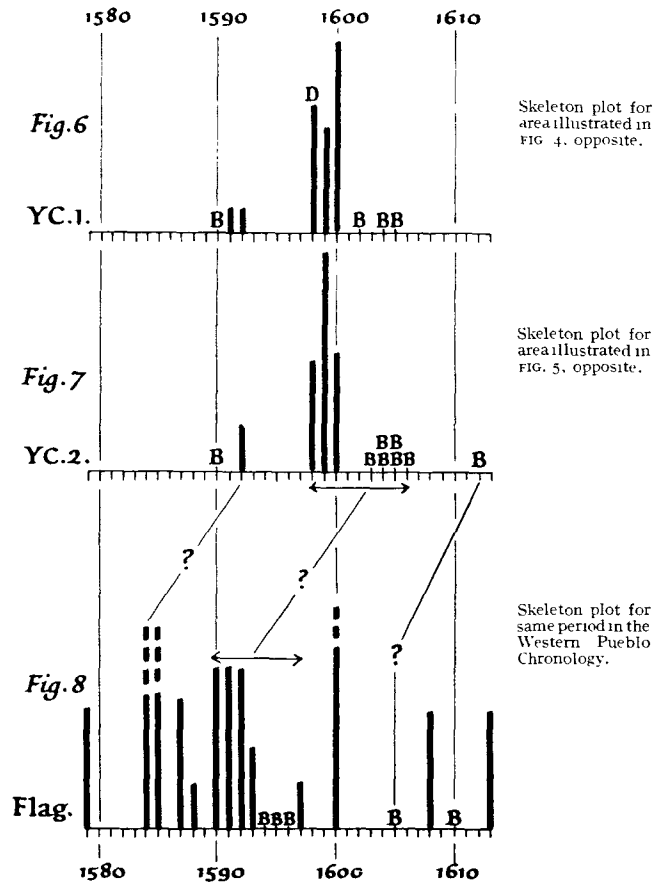


FIG. 4 REGION SURROUNDING YEAR 1600  
(see p. 424 and YC-1, FIG. 6, opposite)

FIG. 5 CORRESPONDING REGION ON YC-2  
FIG. 7 opposite

# PLATE III



Figs. 6-8 (see p. 121)

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Pueblo Chronology plot to warrant assuming any dates from it for the timbers taken from the ruins. On figure 3 the centuries have been marked so that the differences in the rates of growth may be seen.

FIGURE 4 shows the region surrounding what has been assumed to be the year 1600 from specimen YC-1. FIGURE 5 is the corresponding region on specimen YC-2. FIGURES 6 and 7 are the skeleton plots for the areas illustrated in figures 4 and 5 respectively. FIGURE 8 is the skeleton plot for the same period in the Western Pueblo Chronology. It will immediately be seen from figures 4 and 5 that there is a definite and easily recognized signature or sequence of ring widths for the three years *c.* 1598-1600.

In general the rings preceding 1600 are small and those following it are large. In figure 5 the fourth and fifth rings following the signature are particularly large. The difference between the two sections shown is what may be expected in trees growing in the same region but at some distance from one another.

Figure 8, when compared with figures 6 and 7, shows a rather interesting relationship to them. Beginning with 1590, for the northern part of Arizona and the southern part of Colorado, there are four drought years followed by three years of particularly rapid growth. Whether the years 1590-2 in the Western Pueblo Chronology are comparable to *c.* 1598-1600 in the Yampa Canyon is difficult to say. The similarity may be chance, or it may mean that the pattern of climatic conditions moves slowly northward in this region, or that the year *c.* 1598 in the Yampa Chronology actually is 1590 in the Western Pueblo Chronology and that eight missing rings<sup>2</sup> have not yet been discovered between that time and 1933 in the Yampa Canyon Chronology. This last surmise is quite possible since the study of the two specimens shown has been little more than cursory and an insufficient number of specimens have been worked over to make possible the construction of a reliable skeleton plot.

That there is a very distinct difference in the climate of the two regions is well known from the Weather Bureau reports and is indicated in the specimens we have. If Yampa Canyon *c.* 1598 is really the year 1590, the period preceding it should be one of considerable drought since in the Southwest all the trees show a period of little growth between 1573 and 1593. The Yampa specimens do not show so long a drought. However, there was a definite period of low rainfall in that

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<sup>2</sup> Since this was written three such rings have been detected.

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region during the closing years of the 16th century. This can be seen quite clearly in specimen YC-2 in figure 3.

In the Western Pueblo Chronology the 16-hundreds are, generally speaking, wide rings. In YC-2 a good many wide rings occur in that century, particularly in the first half of it. All this indicates that, in general, the climatic conditions in the two regions were similar but not necessarily identical.

For those who are interested I might append here a note on the photography of tree-ring sequences. The photographs for figures 2 to 5 were made on Panchromatic Process film with Wratten's number 49 filter, a very deep blue. This has been found to be the most satisfactory combination for producing sufficient contrast between the soft growth wood and the compact wood produced during the resting period of the tree and terminating the annual increment.

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## Peasant Crofts in North Pembrokeshire

by SIR CYRIL FOX

THE Admiralty, having purchased in 1937 an extensive area of land in Llanychaer and adjacent parishes five miles SSE of Fishguard, Pembrokeshire, kindly permitted the National Museum of Wales to examine and make records of any sites or buildings of interest therein.

I visited the local headquarters at Trecŵn in June 1937 for this purpose. The site consists of a narrow valley—at one point a gorge with rocky scarps—and its flanking uplands. The western half is occupied by Trecŵn House, its parkland and village, an estate developed in the English manner and providing little of antiquarian interest. The remainder was largely under different ownership, and, apart from Llanychaer church and farm, both of which are modernized, more primitive conditions survive in it. This portion of the area, which includes the picturesque rock-wall of Graig Lwyd, is shown in FIG. 1. Each rectangle on the map represents a dwelling; and it will be seen that settlement is now confined to the floor and eastern side of the valley. It is of the diffuse type, which contrasts so strongly with the nucleated villages characteristic of England and met with in south Pembrokeshire and other anglicized parts of Wales. If the parish boundaries be examined (shown by a line of dots on the map) it will be seen that most of the houses are in Llanychaer parish, the ancient centre of which, the church, has only one farmstead near it. The shaded (red) portion of the map represents part of the common land (rough mountain pasture) of this and the adjacent parish. The dwellings within the area controlled by the Admiralty are overprinted in red.

Of these, two on the west side of the valley streams, like Llanychaer farm, are modern. The remaining eighteen cottages (including two pairs) the names of which are shown in red on the map, are the subject of this article. They are the dwelling-houses of crofts, small pastoral holdings worked by peasant-tenants. Some are in ruins, many deserted and in various stages of decay—conditions not unhelpful to a survey of this character. Reference should here be made to the courtesy of the

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Admiralty representative at Trecŵn, Mr G. P. Lumley, and to the use made of the detailed local knowledge of William Morse, an owner-occupier of a typical steading, born in the district, who accompanied me and my wife throughout the survey.

Ffynnon-goy-uchaf (FIG. 6) may first be noticed, since it provides a typical exterior of a cottage still in occupation, and well looked after. The walls, of coursed rubble roughly squared with large quoins, are whitewashed every spring following the local custom; the roof of local slate is rendered watertight—and indeed airtight—by a grout of lime mortar or cement renewed when required.\* Such cottages show up brilliantly in the sun, dazzlingly white in their rural setting, making the most delightful picture imaginable.

The small size of Ffynnon-goy-uchaf (25 by 17 feet externally), the central doorway, the two small windows with slate sills, and the absence of dormer windows, are characteristic.

The majority of these cottages are on sloping ground, and in such a situation they always face downhill. Thus the backs of the houses are built into the hillside, so that one might step from the garden on to the roof! Ffynnon-goy-isaf (FIG. 7) is sited in this fashion.

Sometimes on an exposed site the roofs are weighted by slabs of quarried stone, mortared on to the slates down each of the gables, as in FIG. 8, where protection against the winter gales was also afforded by a porch—a late addition to the building, now unroofed. This illustration of Llain-wen-isaf also shows an outstanding feature of the elevation of these cots, the large size of one of the chimney stacks. The back view (FIG. 9) shows another universal characteristic: the small window at the big-chimney end of the house.

The door of any one of these houses opens into the living-room. The most striking sight on entering is the great open fireplace at the gable end, usually, as in FIG. 10, with a later fire-grate and bread-oven built in.<sup>1</sup> This illustration of Cwm-giâr, a cottage in the valley, shows the chimney breast, here a massive beam of ship's timber, high above the floor. The fireplace with its inner flanking wall normally occupies two-thirds of the width of the house. FIG. 11, of Carn-deifog-fach,

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\* Mr Morse remarks that the older method, liming, is preferred to cement, though it is not so weatherproof; for while a gale may loosen half-a-dozen slates on a lime-washed roof, a square yard or more of cement roof may under similar conditions be carried clean away.

<sup>1</sup> See Iorwerth C. Peate in *ANTIQUITY* 1936, p. 458, for an interesting comment on this practice.





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illustrates its relation to the doorway (on the right) and to the little back window (on the left) to which reference has already been made.

In dealing with interiors as they are lived in, one must resort mainly to descriptions, plans, and sections ; the structures are so small that only in deserted houses with gutted and ruined interiors can one stand far enough back to obtain satisfactory results with the camera. The picture of Carn-deifog-fach (FIG. 11) for example was taken from the further corner of the bedroom looking towards the living-room. It may be noted that in this building there is no trace save on the wall-plaster, of the partition—a flimsy wooden structure—which formerly divided the rooms. The outer walls and the chimney-piece are in fact the only parts of these cottages likely to survive prolonged neglect.

We turn then to measured drawings, and FIG. 2 shows the plan of Llain-wen-isaf,<sup>2</sup> the exterior of which has already been illustrated. The house—when examined in June 1937—had only recently been deserted, and retained all its fixtures. The living-room, which is entered from the central doorway through a short passage ceiled with boards, is open to the roof ; the passage is formed by the bedroom partition on one side, and on the other by a fixed screen,<sup>3</sup> some 7 ft. high, which keeps the draught away from the house-place in front of the hearth. The fire of culm, a mixture of clay and coal dust, formerly burned on the floor, but a small grate has as usual been built in at a later date. The chimney being central to the gable, the smoke is directed inwards diagonally up the back of the hearth ; this renders the ‘chimney corner’ on the further side in every respect a comfortable sitting place. There is a shelf just above it in the thickness of the wall. The roof of the ingle is roughly corbel-vaulted.

The recess at the other end of the gable is shut off from the kitchen by a wooden partition and ceiled ‘to keep away the dust’. It is the dairy, lighted by the little window seen in FIG. 9. A mere box, it measures  $5\frac{1}{2}$  by  $4\frac{1}{2}$  ft., thus illustrating the tiny scale of the farm and its slender resources. In front of the dividing wall between dairy and hearth—indeed a projection from it—is a small semicircular stone

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<sup>2</sup> In this, the northern part of Pembrokeshire, Welsh is universally spoken, and the place-names are, for the most part, compounds of known Welsh words. Llain-wen-isaf for example means the Lower white strip (of land) ; its neighbour is the Upper white strip. Cwm-ceiliog is the valley or hollow of the cockerel ; Cwm-giâr, the valley of the hen.

<sup>3</sup> This is not a normal feature of the houses ; like the porch it was probably put up by the tenant to keep out the southwest wind driving up the cwm.



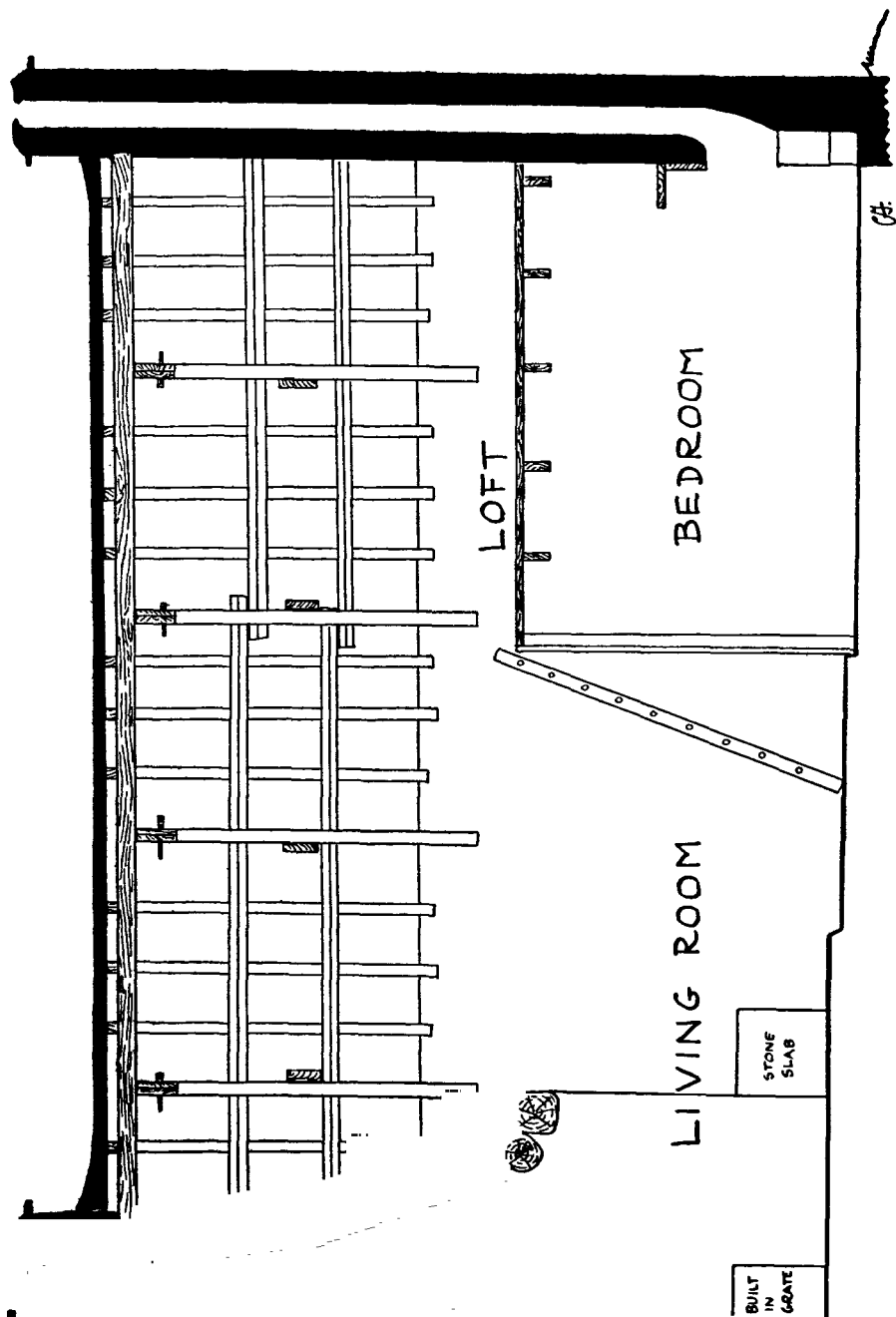


FIG. 3. LLAIN-WEN-ISAF: longitudinal section, line A-A' on plan  
Scale as Fig. 2

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

bench (*fainc*) used as a stand for the washing bowl and for culinary purposes generally. This is well seen in the interiors, FIGS. 10 and 11.

The bedroom, ceiled by 6 by 2 joists and wide boards, shows a tiny grate; there is a shelf in the wall where the bed was placed, as that in the living room is over the chimney corner.

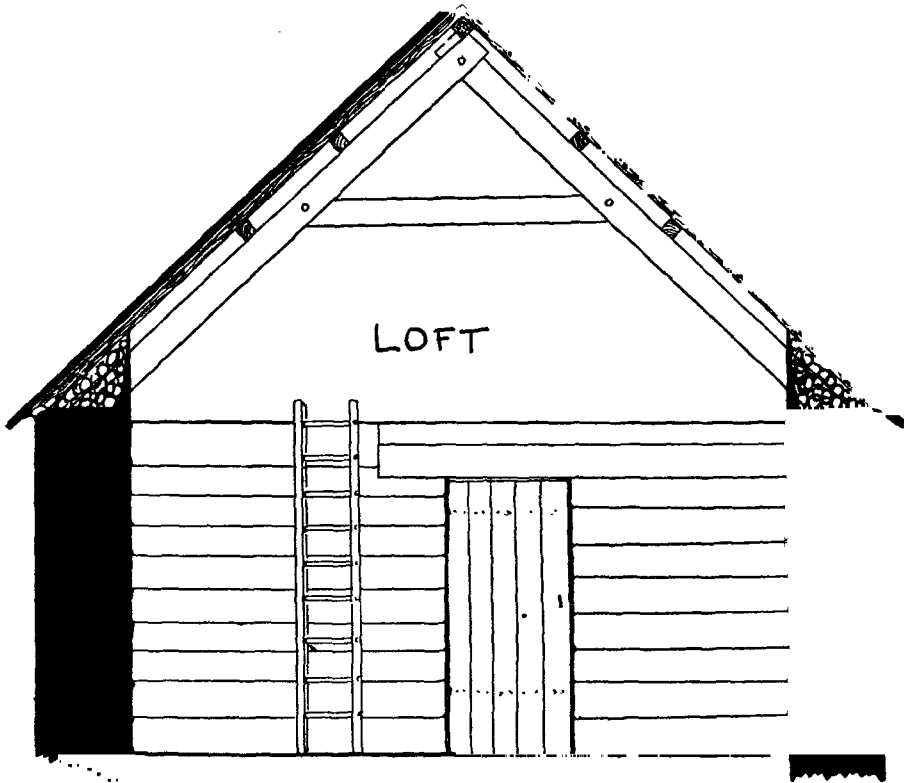


FIG. 4. LLAIN-WEN-ISAF: cross-section, line B-B on Plan. Scale as FIG. 2

The interior of the house was papered, living-room and bedroom (a minor intrusion of urban standards); the hearth-place was colour-washed with the back of the hearth 'tarred to hide the smoke-stains', and the dairy was whitewashed. The floor was originally of stone slabs, but the bedroom and part of the living-room had recently been provided with a cement floor.

Over the bedroom is the loft. This can best be studied in the longitudinal and cross sections (FIGS. 3 and 4). Its floor is of course

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the ceiling of the bedroom and is 7 ft. above the living-room floor ; it forms a dark and airless triangular space the apex of which is the roof-ridge, with no rail or other protection along its open edge. It forms, normally and by custom, a second sleeping apartment, and is reached by means of a movable ladder. Occasionally the loft is boarded up making it even darker and more airless. FIG. 13 shows (with the distortion unavoidable in a photograph) the square hole at Ffynnon-goy-isaf by which the enclosed loft in this cottage was entered. Mr Morse remembers five children living here with their parents, and the boarding (which is a later addition to the structure) was probably added for safety. It may be noted that the living-room window of this house (just visible in FIG. 7) was only 18 inches square ; that of the bedroom a little larger.

The roof construction of these cottages is simple. It consists of three or four main trusses of elementary form with collar-beams, pinned together with treenails ; their overlapping (and flush) upper ends forming a notch in which the ridge rests. This is well seen at Blaen-waun (FIG. 14) and is a technique frequently met with in Wales from medieval times onwards.

The construction thereafter, with purlins and common rafters, follows the usual practice. The customary angle of slope approximates to 45°. The general appearance from inside is well seen in FIG. 15, the roof of Carn-deifog-isaf. These roof-trusses are coeval with the building ; but the roofs of the cots in general are flimsy and poor, and in consequence many are seen to be replacements.<sup>4</sup> This flimsiness is, as the plan and sections suggest, characteristic of all the carpentry in the building, contrasting strongly with the massive masonry of the walls. The windswept character of the country, making long and straight timber difficult to obtain, is probably sufficient to account for the lack of a good tradition in woodwork.

An interesting feature of the roof construction is the care taken to eliminate draughts. When the roof has been completely framed the walls are built up (' beam filling ') so that the ends of the main trusses, and sometimes the lower parts of the common rafters, are embedded in the sloping wall-tops (FIG. 4).

Similar technique is employed over the open fireplace, the upper surface of its corbelled vault forming an even slope on which the common rafters are laid and sometimes embedded. This feature is

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<sup>4</sup> In the Sections (FIGS. 3 and 4) a measured drawing of a typical original roof has been inserted, since the existing roof at Llain-wen-isaf is modern.

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

well shown in FIG. 14 of Blaen-waun and FIG. 16 of Cwm-ceiliog. Moreover when the slating is finished the internal face of the wall is plastered up to the slates, as shown in FIG. 15, and in the sections (FIGS. 3 and 4) ; and since the roof was grouted externally (p. 428) it was completely airtight. Only by such devices could an inadequately heated interior open to the roof be made habitable in a wet and windy countryside.

The reader will have noticed that the Llanychaer cottages are singularly uniform in their construction and internal and external features. They are, however, of different dates, and vary in detail. A study of these minor differences enables fourteen of the houses to be brought into a rough sequence; these are listed in the TABLE (p. 440). In our first group the masonry is of early character ; the walls are built of boulders, some unhewn, others roughly faced, packed and wedged with slivers of stone ; there is moreover no lime-mortar, save in the chimney construction. These characters are shown in FIG. 16. Each house has one hearth only. Next comes a group also with one hearth, but with masonry of quarried stone roughly coursed, with squared quoins ; Blaen-waun (FIG. 14) is a good example. The two examples of paired houses in the area come into this group ; one pair, Carn-deifog-fach, has a window at the back as well as the front.<sup>5</sup> A third group, represented by the illustrations of Llain-wen-isaf (FIGS. 8, 9), has a second chimney ; the window- and door-heads in this group are sometimes of brick, and the loft may be boarded up.

The fourth group has the exceptional amenity of a window in the gable, to light the loft ; it also has a heavier overhang to the eaves (the common rafters project) and higher walls, the wall plate being 8 to 9 ft. up, as against a normal 6 to 7 ft. (see FIG. 17 of Carn-deifog-isaf).

That this sequence—the latest member of which probably dates from about 1800—represents a cultural succession is almost certain ; that it represents a chronological succession is also probably true, with reservations. The use of the gritty earth of the district for binding material points to a time when lime mortar was very difficult to obtain,<sup>6</sup>

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<sup>5</sup> This pair of houses is on level ground, and the variation from the normal may not have much significance. The occurrence of paired houses represents, I think, a definite intrusion of urban ideas into this countryside, probably in the 18th century ; rows of two-roomed cottages are not uncommon in the older parts of Pembrokeshire townships.

<sup>6</sup> Dr F. J. North points out to me that in George Owen's 'Description of Pembrokeshire' (1603), there is a reference to the contemporary scarcity of lime in North Pembrokeshire—'in *Kemes, Killgarran, & Dewisland* where the lyme wanteth, . . . they vse mortar of Clay or erth to make their stone walles . . . (ed. H. Owen, 1892, p. 78).

## ANTIQUITY

and it can hardly be coincidence that five out of eight houses in our first two groups are thus constructed. The use of earth as mortar still persists, but it is now used, Mr Morse tells me, only for cowhouses, pigsties and such-like buildings—'It sticks well when it is wet'. That the majority of the ruined examples fall into the first half of the sequence also suggests that this sequence is chronological.

These variations then, being all in the nature of improvement, economy, or increased convenience, represent the impact of the developing civilization of Britain on a remote and isolated peasant community.

Nothing, however, has emerged from their study to induce us to modify our original conclusion: the uniformity of type remains the most interesting and important feature of the cottages. This uniformity extends to size; the measurements given in the Table show how limited is the variation. The fourteen buildings range in internal length only from 19 ft. 1 in. to 27 ft. 1 in., and in breadth from 12 ft 5 in. to 13 ft. 8 in. Thus we are studying the material aspects of a permanent and fixed tradition and way of life—the demands of those bred in it were practically unchanging from generation to generation.

One further point of some interest arises. So strong was until recently the cultural tradition that these cots represent, that a house of two stories in the area—Pant-teg, of mid-xix century date—has the ground-plan we have described only slightly modified. The dairy recess is there—but it is occupied by the staircase, the dairy being in a lean-to. The ingle-nook remains with its high chimney breast; there is a built-in hearth. When this house was built, 'by two sailors for their parents', Mrs Phillips, the present occupier, informed us, 'it was looked upon like a castle by the rest of the people'.<sup>7</sup>

Though the majority of the cottages face downhill, as has been said, the rule is not invariable. On fairly level ground, the principal front may face in any direction. Whether such grouping as exists in the area, in particular at the head of Nant-y-Bugail (see FIG. 1, Map) was due to desire for propinquity, to the nearness of the 'common',

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<sup>7</sup> There is one large farmhouse in the neighbourhood of the cottages, Garn, in Llanychaer parish. It is round-chimneyed, a (medieval?) structure of the type described by Romilly Allen (*Arch. Camb.*, 1902, p. 1 ff.). Its arrangement is essentially that of the cots; the accommodation is on two floors at one end, at the other is a living room open to the roof. The entrance passage is in the middle.

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

or to the existence of numerous springs of fresh water and a stretch of fertile ground at this spot, I am not prepared to say.

The cots are the habitation of crofters, and a typical inhabitant is shown in FIG. 19, with his 'Irish' spade, significantly the only form of this tool used in Pembrokeshire, on his shoulder. Each cottage has associated with it a cow-shed and pigsty, and sometimes a little cart shed, pony shed or fowl-house, and a culm store—the latter a small

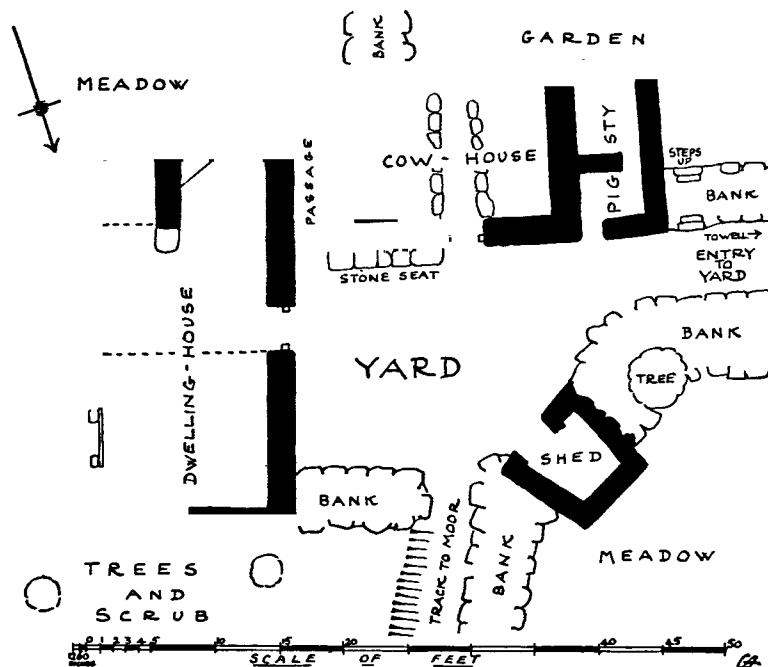


FIG. 5. CARN-DEIFOG-ISAF: sketch plan of the Steading

oval dry-walled receptacle. Privies are entirely unknown. There is no regular arrangement of the outbuildings; the cow-shed may be built on to one gable end of the cottage as at Ffynnon-goy-isaf (FIG. 7) or separate from it as at Carn-deifog-isaf. This latter, as being the most compact of all the steadings, is planned in FIG. 5, and illustrated in FIGS. 17, 18. The small scale of the yard is shown by the fact that the photograph (FIG. 17) was taken from its furthest corner! The thick high boundary walls of earth revetted with stone, shown on the plan, are a feature of the field divisions in Pembrokeshire.



## ANTIQUITY

Each croft has several small grass fields, and a garden ; there is no ploughland. The general setting, and the geographical relation of many to the moorland which borders the settlement, is well shown in FIG. 12—Carn-deifog-fach. Each crofter has the valuable right of grazing sheep on this moorland, which is a part of the great Presely upland, and covers well over a thousand acres in Llanychaer parish alone. The rent of an average holding with 6 acres of land was, Mr Morse told me, £11.

Though primitive, the Llanychaer cottages are not ancient. I doubt if any one of them, even the most ruinous, can be more than three centuries old ; and in some respects—the masoncraft of the vaulted ingle-nook and the sloping chimney shaft of all the houses, the paired construction of four, and the secondary fireplace of many—the technique is sophisticated. But the sophistication they show is but partial ; primitive elements survive, indeed dominate the design. In essence, we are studying small rectangular structures open to the roof, each with a hearth. Nothing could be simpler—except a round hut, and that form was dying out in Wales in Roman times.<sup>8</sup> Furthermore, the partitions, which are obviously a secondary development, provide as we have seen a remarkably primitive feature, the loft which extends over only half the interior.

This N. Pembrokeshire house-type represents then in its simplicities primary and secondary, an ancient tradition ; it is a survival into modern times of the core round which the peasant culture, in one of its numerous forms, so significant for Welsh history, was built up. I say ' in one of its numerous forms ', for though the two-roomed cottage is, or was, widely distributed in Wales, the building technique and the lay-out we have described has a much more limited spread ; as far as my knowledge goes it is coastal, and west coastal at that. My colleague Mr Iorwerth Peate is working on the geographical distribution of the various types of Welsh houses, and exact information on such points as this will in due course be forthcoming.<sup>9</sup>

Mr Peate suggests, and I agree, that constructional technique is largely conditioned by environment, and Pembrokeshire features—such as the grouted slate roofs—may therefore be a late development. But this is not the case with lay-out ; such spatial relationships as that of dairy to hearth, so constant in our house series, are, I suggest, not

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<sup>8</sup> It survives today, I think, only in the ' Welsh pigsty '.

<sup>9</sup> See his paper ' Some Welsh Houses ', *ANTIQUITY* 1936, x, 448 ff.

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

superficial or recent, but ancient and fundamental, linked to customary procedure in the basic activities of human life. Differences in these relationships represent, on this view, very early cultural divergence. If this be true the Pembrokeshire cottages represent one of the many strands of culture which in the Dark Ages or earlier went to the making of the social and economic pattern of rural Wales, which lasted so long and which is now so rapidly breaking down.

Furthermore, these cottages represent a regional type of a well-known house-form of wide distribution in south-western and northern England, and in Scotland ; they are also characteristic of Ireland, to go no further afield. Whether this spread is due to powerful influences operating along the western sea route, or to the survival in the Highland Zone of Britain of primitive forms and a social class extinct or nearly so in the Lowland Zone is an interesting problem. Clearly it is urgently necessary, as a basis for the scientific study of the social anthropology of Britain, that the two-roomed cottage should be measured, planned and described in all its variations, and that the range of these variations should be plotted. Urgently necessary ; because though these house-types are at present common enough, in Wales at all events, recent legislation, applicable to Britain generally, is hastening their destruction by imposing standards of accommodation which must eliminate their special—and for our purposes vitally important—features.

This destructive process is aided by a tendency even more powerful—the movement of the young people away from the out-of-the-way places where the cottages best survive. Of eighteen cottages visited and measured at Llanychaer in the course of the present survey, only three were still inhabited ; it is still more significant that of the fifteen unoccupied cottages, seven had been deserted within the last few years. That this refusal of a traditional mode of life is primarily due to primitive conditions in the cottages is improbable ; rather, it is the croft system that has broken down in the area. We must suppose that the life is too hard, the rewards too slight, the inconveniences of isolation too manifest. The croft cannot today yield a ‘ living ’, Mr Morse tells me, in his district.

The reader may think that the plans and descriptions in this article of a Llanychaer cottage are unnecessarily detailed. I would plead that this is done ‘ as some defence against the march of Time ’. Such a cottage as Llain-wen-isaf ought long ago to have taken its place in a series of the primitive dwellings of Wales in a National Open-Air Museum, but such a folk-museum seems as far from realization as

## ANTIQUITY

ever ; and the best that can be done today is to make a record sufficiently detailed to permit students, in a more enlightened age, to reconstitute a ruined or altered example. Only ruined or altered examples are likely then to remain.

### TABLE

#### *Analysis of fourteen cottages in North Pembrokeshire*

(The measurements are internal, overall)

#### GROUP A. One hearth : early masoncraft.

- |    |                     |                             |
|----|---------------------|-----------------------------|
| 1. | Crug-glas (ruin)*   | 20 ft. 1 in. by 12 ft 5 in. |
| 2. | Cwm-ceiliog (ruin)* | 22 ft. 9 in. „ 13 ft. 3 in. |

#### GROUP B. One hearth : rubble roughly coursed, squared quoins, stone or wood lintels

- |    |                         |                               |
|----|-------------------------|-------------------------------|
| 3. | Spite (ruin)*           | 20 ft. 5 in. by 12 ft. 11 in. |
| 4. | Blaen-waun (unroofed)*  | 23 ft. 1 in. „ 13 ft. 5 in.   |
| 5. | Gilfach-uchaf A (ruin)* | 19 ft. 1 in. „ 13 ft. 0 in.   |
| 6. | „ „ B (ruin)*           | 21 ft. 0 in. „ 12 ft. 9 in.   |
| 7. | Carn-deifog-fach A      | 24 ft. 6 in. „ 12 ft. 7 in.   |
| 8. | „ „ „ B                 | 22 ft. 11 in. „ 12 ft. 8 in.  |

#### GROUP C. Second fireplace : window and door-heads sometimes of brick

- |     |                                |                              |
|-----|--------------------------------|------------------------------|
| 9.  | Ty'r-lan†                      | 21 ft. 3 in. by 13 ft. 2 in. |
| 10. | Llain-wen-uchaf (partial ruin) | 26 ft. 0 in. „ 13 ft. 2 in.  |
| 11. | Llain-wen-isaf                 | 23 ft. 10 in. „ 13 ft. 8 in. |
| 12. | Ffynnon-goy-isaf†              | 22 ft. 8 in. „ 13 ft. 6 in.  |

#### GROUP D. Refinements additional to second fireplace‡

- |     |                  |                              |
|-----|------------------|------------------------------|
| 13. | Cwm-giâr         | 22 ft. 0 in. by 13 ft. 4 in. |
| 14. | Carn-deifog-isaf | 27 ft. 1 in. „ 13 ft. 4 in.  |

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\* In these buildings lime mortar was used only for the hearth and chimney construction.

† Loft recently boarded up, with hole for entry.

‡ Higher walls : heavier overhang to eaves (common rafters project) ; window to loft (in gable). Carn-deifog-isaf has also a small lean-to.



FIG. 6. FFYNNON-GOY-UCHAF : exterior, front (see p. 428)  
FIGS 6-19 *ph.* National Museum of Wales

FIG. 7. FFYNNON-GOY-ISAF : exterior, front (see pp. 428, 431, 437)

PLATE II



FIG. 8. LLAIN-WEN-ISAF - exterior, front (see pp. 428, 431, 435)  
(see also FIGS. 2-4)

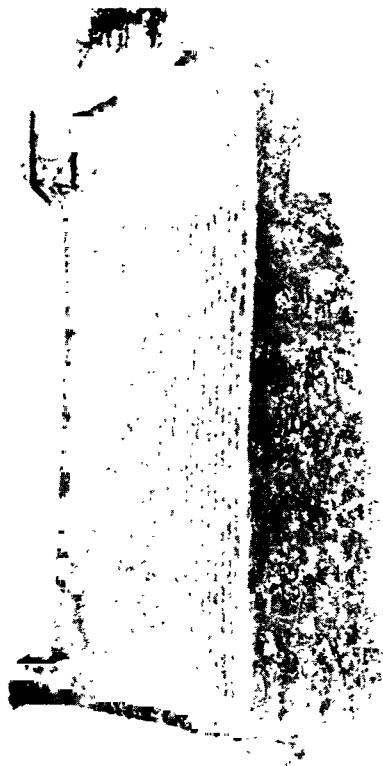


FIG. 9. LLAIN-WEN-ISAF - exterior, back (see pp. 428, 430-5)

PLATE III



FIG. 10 CWM-GIAR hroplace (see pp. 428, 433)

PLATE IV



FIG. 12. CARN-DEIFOG-FACH - on the edge of the moor (see p. 438)

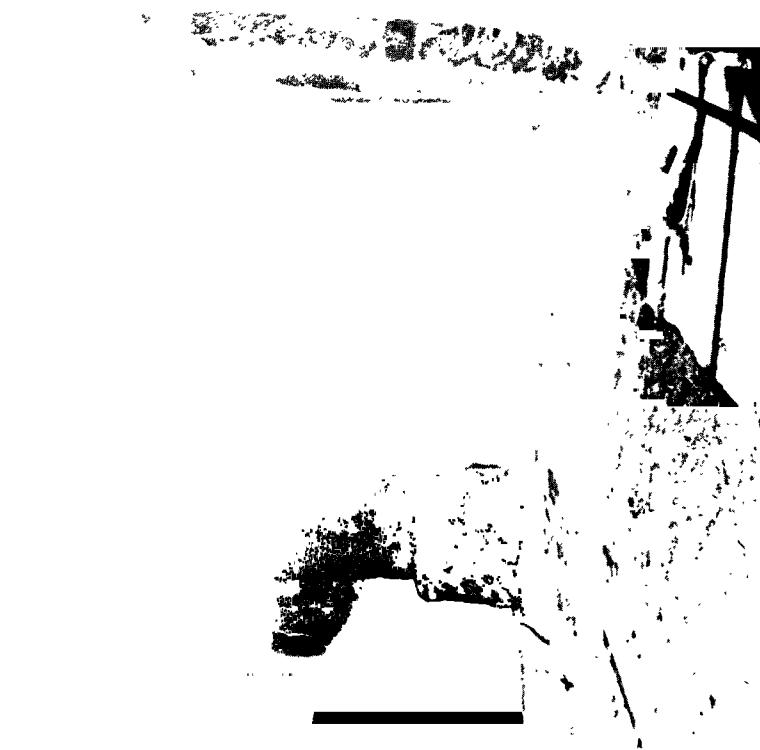


FIG. 11. CARN-DEIFOG-FACH . E. house, interior, living-room end (see pp. 428, 430, 433)

PLATE V



Fig. 13. HLYNNON-GOY-ISAU: sleeping loft, over bedroom (see p. 434)



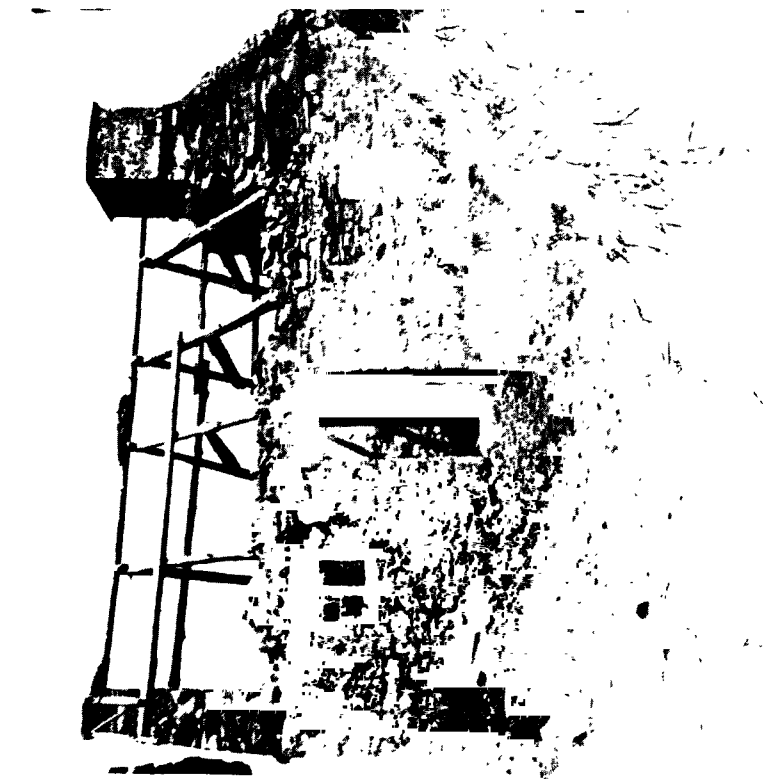


FIG. 14. BLAEN-WAUN cottage with one fireplace (see pp. 131, 135)



FIG. 15. CARN Dŵllŵg (SAI roof) (see pp. 131, 135)

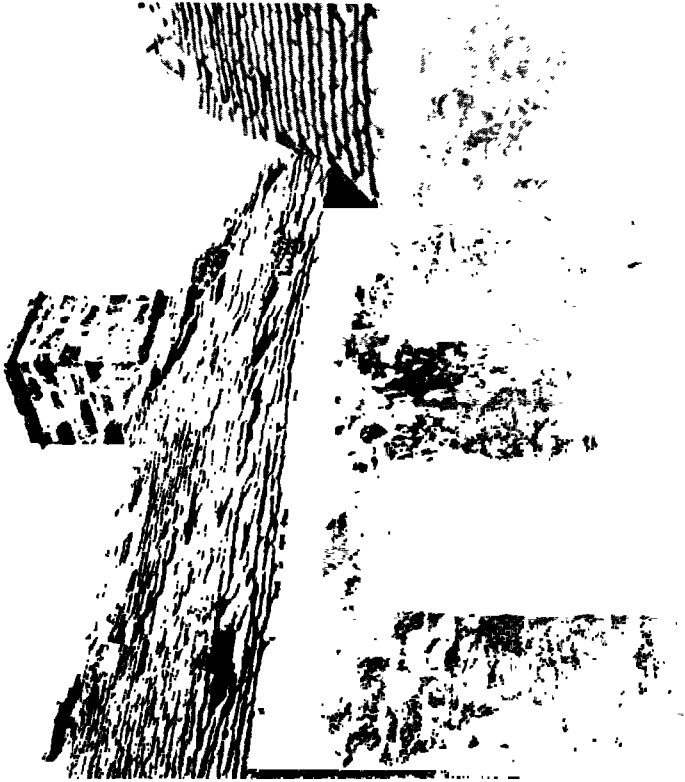


FIG. 17. CARN-DEH-OG-ISAP, the yard (see pp. 435, 437)



FIG. 16. CWM-CELLIG, hearth gable (see p. 435)



FIG. 19 THE CROFTER GOES GARDENING (see p. 137)



FIG. 18. CARN-DÉH OG-ISAI'; the steading from the south (see p. 137)  
(see also Fig. 5)

# The Long Barrow in Brittany

by STUART PIGGOTT

THE English long barrows have for long been a fertile source of discussion, and since Thurnam's paper of 1868<sup>1</sup> there has been much speculation as to the precise Continental affinities of these tombs. It seemed clear from the outset that they were members of the complex family of megalithic tombs distributed from Iberia to Orkney, while Thurnam himself compared more detailed features such as the chamber at West Kennet with such Breton examples as Mané Lud. Subsequent writers, notably Forde,<sup>2</sup> have seen in the Breton many-chambered passage-graves of the type of Keriaval the probable source of such long barrow chambers as Stoney Littleton, Parc Cwm or Wayland's Smithy; but it was difficult to provide convincing Continental parallels for the whole specialized English long barrow type. While certain elements (notably details of passage, antechamber and chamber) could be paralleled again and again in the megalithic series, the persistent and carefully constructed trapezoidal mound eluded search outside Britain. Furthermore, a study of the grave-goods, particularly in the light of a number of recent excavations of barrows in southern England, showed that the long barrows of Wessex, mainly non-megalithic and supposedly derived from the megalithic barrows in the Cotswolds or further west, were apparently contemporary with and an integral part of the earliest Neolithic culture of Britain (Neolithic A) and a similar cultural identity seemed probable in Sussex.

The problems thus presented were discussed by the writer in a recent paper,<sup>3</sup> where it was claimed that since the long barrows of South Wiltshire and Dorset were on the evidence available the earliest members of the group, any search for origins must be directed to this region. In the face of the apparent absence of Continental prototypes the suggestion was put forward (leaving the writer, and doubtless most of his readers,

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<sup>1</sup> *Archaeologia*, XLII, 161-244.

<sup>2</sup> *American Anthropologist* 1930, N.S. XXXII, 91ff; *Proc. First Internat. Prehist. Congress, London*, 1932, 114-17.

<sup>3</sup> *Proc. Prehist. Soc.* 1935, I, 115-26.

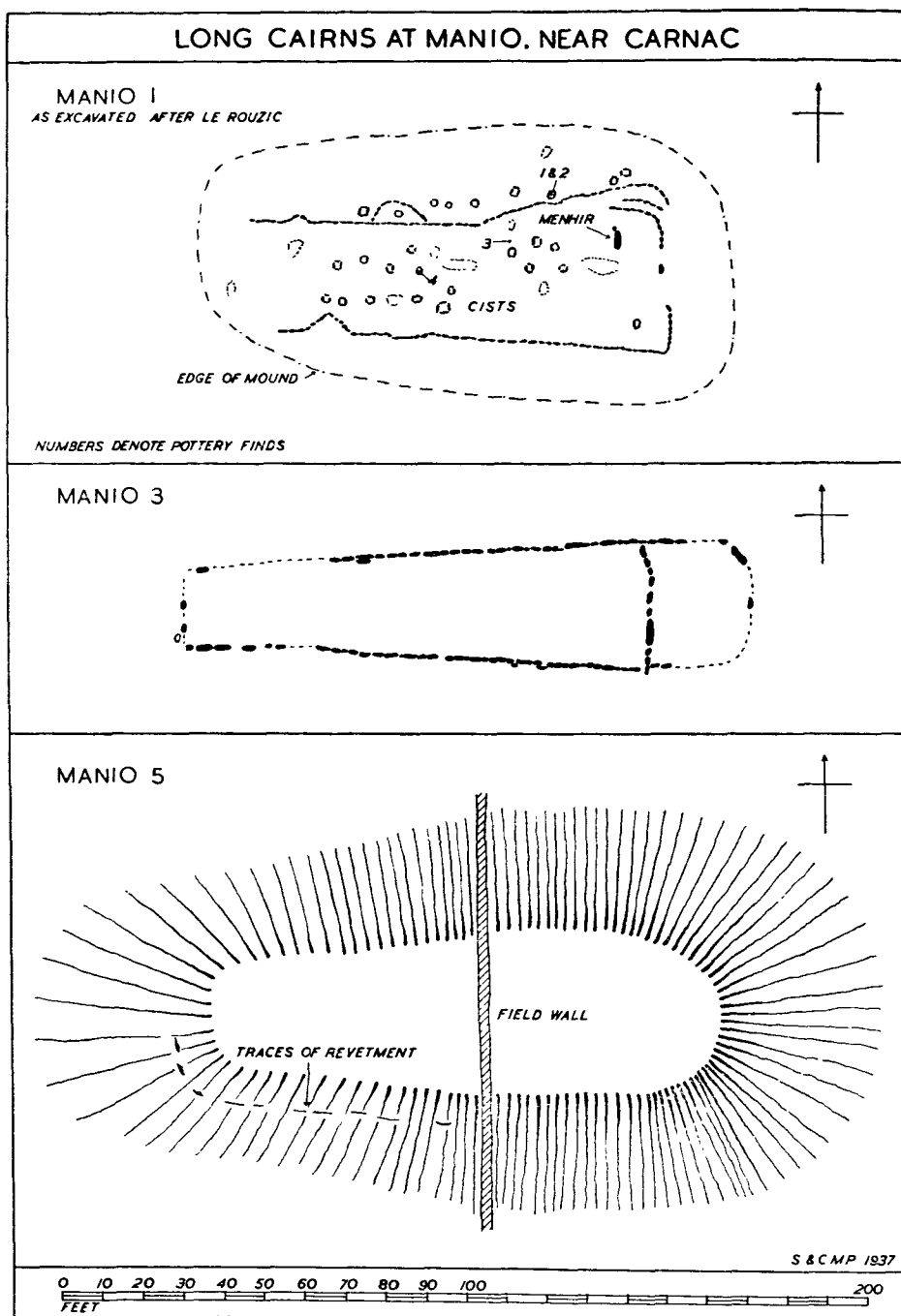


FIG. 1

## THE LONG BARROW IN BRITTANY

unconvinced) of an indigenous origin of the type in southern England, although it was pointed out that, could convincing evidence be obtained from northern France, the distribution pattern certainly suggested a movement from Armorica to Dorset.<sup>4</sup>

It is clear that the requirements of any claimants for the position of proto-long-barrows are twofold : they must present the features of the angular (usually trapezoidal) mound, defined by a peristalith or dry walling in stone country and by palisades and revetments elsewhere, and they must belong to a culture chronologically early enough to allow of their appearance in southern England in Neolithic A times. In addition, the presence of earthen long barrows of types which though containing multiple burials, structurally preclude successive interments in the strict megalithic tradition and are securely dated to the earliest phase, suggests that this successive burial practice may not be an original feature.

Field and museum work in southern Brittany early this summer left the writer with little doubt that there exists in this region a class of monument which has strong claims to be regarded as ancestral to the English long barrows : monuments which, although distinguished as a type by le Rouzic fifteen years ago, and by him for long considered as the Breton equivalents of our long barrows, have not received the attention they deserve.

The tombs in question are best represented by a group of four on the plateau of Manio, to the northeast of Carnac, described by le Rouzic.<sup>5</sup> FIG. 1 shows plans of the three best preserved, the numbering being that of his first paper. Of these, Manio 1 is the most important. Its features can best be appreciated from the plan : outwardly it appears today as a low oblong mound, nowhere more than 3 feet high, with a single standing stone, 12 feet high, in its eastern end (PLATE 1). Le Rouzic's excavations revealed a sub-angular peristalith of small stones and a number of small cists or coffers, containing traces of burning, but apparently no actual bones, mostly within the peristalith, although eight and a possible ninth lay outside to the north, while one was enclosed by walling which formed a semicircle against the peristalith. Near the standing stone was a small dry-walled chamber with grave-goods to be described later, and the excavations further

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<sup>4</sup> *loc. cit.*, 117.

<sup>5</sup> *Bull. Soc. Poly. Morb.* 1921, 85-92. The excavation of Manio 1 is described in *Carnac, fouilles faites dans la région*, 1923, 47-115 ; a summary with plan is in *L'Anthrop.* XLIII, 227-29, and photographs of the pots *ibid.* XLIV, 486.

## ANTIQUITY

revealed the fact that the base of the standing stone was carved with serpent-like designs.<sup>6</sup> The most remarkable feature of the barrow however is the fact that it underlies the great Kermario alignments or avenues of standing stones, four lines of which pass directly across the barrow from west to east, the menhir described above standing at right angles to the stones of the alignments and overtopping them by several feet (FIG. 2).

Manio 2 exists today solely as a badly preserved low long mound, some 250 feet long, with its axis (as in the other examples) east-west

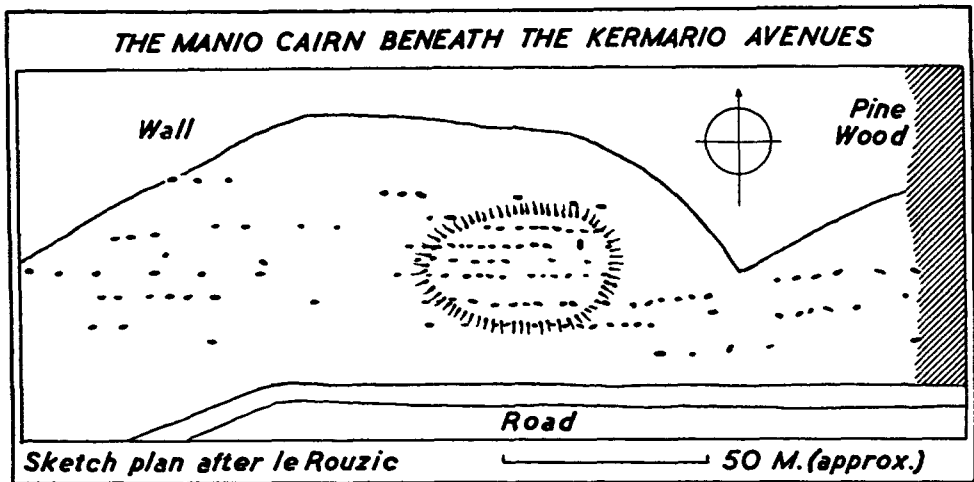


FIG. 2

and a breadth of from 80 to 100 feet. Near its western end but outside the mound is a small standing stone.

Manio 3 consists only of a peristalith, of the trapezoidal form shown on the plan, from which every vestige of the mound has been removed. At the eastern end there are remains of a stone setting which may be the remains of some form of forecourt (PLATES II-III).

Manio 4 of le Rouzic's list is a low *round* cairn, unrelated to the series under discussion.

Manio 5 presents an outward appearance precisely similar to an untouched English long barrow, with slight traces of a peristalith showing through on the southwest. It was excavated by le Rouzic in

<sup>6</sup> *Corpus des Signes Gravées*, 1927, pls. 3-6.

## THE LONG BARROW IN BRITTANY

1916, and from his (unillustrated) report one gathers that a quadrilateral area, 49 by 13 metres, was found enclosed by a peristalith and rough dry walling. Within this, a hearth was found in the southwest angle. Twelve metres from the west wall of the peristalith, and on the main axis, was found a roughly circular dry-walled structure some 4 metres in diameter and 1 metre 80 in maximum height, the internal space measuring about 1 metre 60 in diameter and having a paved floor (PLATE IV).

A similar group of three long cairns (FIG. 3) was excavated by Miln near Crucun'y in 1878.<sup>7</sup> The first of these, known as Mané-Pochat-en-Uieu, was found on excavation to be a quadrangular mound enclosed within a wall mainly of small stones, but incorporating standing stones of some size. The area enclosed by this wall is orientated nearly east and west, with the large end to the east. Within this area were the remains of two structures of piled-up stores covering black earth, while remains of burning with patches of charcoal were noticed at several points on the old surface within the wall.

Of the second cairn, Mané-clud-er-ye'r, little remained. The east wall, some 16 metres long, was intact, while 32 metres of the north, and 7 metres of the south wall were traced. The plan, so far as can be judged from these fragmentary remains, would appear to have been similar (*i.e.* irregularly quadrangular) to the other two cairns. Mr Crawford has directed the writer's attention to a plan by W. C. Lukis, preserved among the Lukis MSS, of another long cairn of the type under discussion 'about 50 yards due N. of dolmen of Klud-er-ye'r'; 'explored by Abbé Collette, 1872'.

The third cairn was known by the name of Mané-Tyec, and as can be seen from the plan, was similar in general features to Mané-Pochat-en-Uieu, being surrounded by dry walling incorporating upright stones, but in addition having various earthfast stones standing within the enclosure. Remains of a circular structure were found towards the western end, and again traces of fire on the old surface. The eastern end of the structure was in a mutilated state.

Suspending discussion of the features presented by these cairns we come to a consideration of the grave-goods discovered in the recorded excavations. At the foot of the menhir of Manio 1 was a votive deposit of four small axes of diorite and fibrolite, while a fifth was found near

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<sup>7</sup> *Bull. Soc. Poly. Morb.* 1883, 36-49, with plans of the cairns but no illustrations of the finds. Two sherds however are illustrated in *L'Anthrop.* XLIV, 495.



## ANTIQUITY

by, together with a quartz pendant. Near the menhir was a cist with a large cover-stone, on the upper side of which was an engraving of a

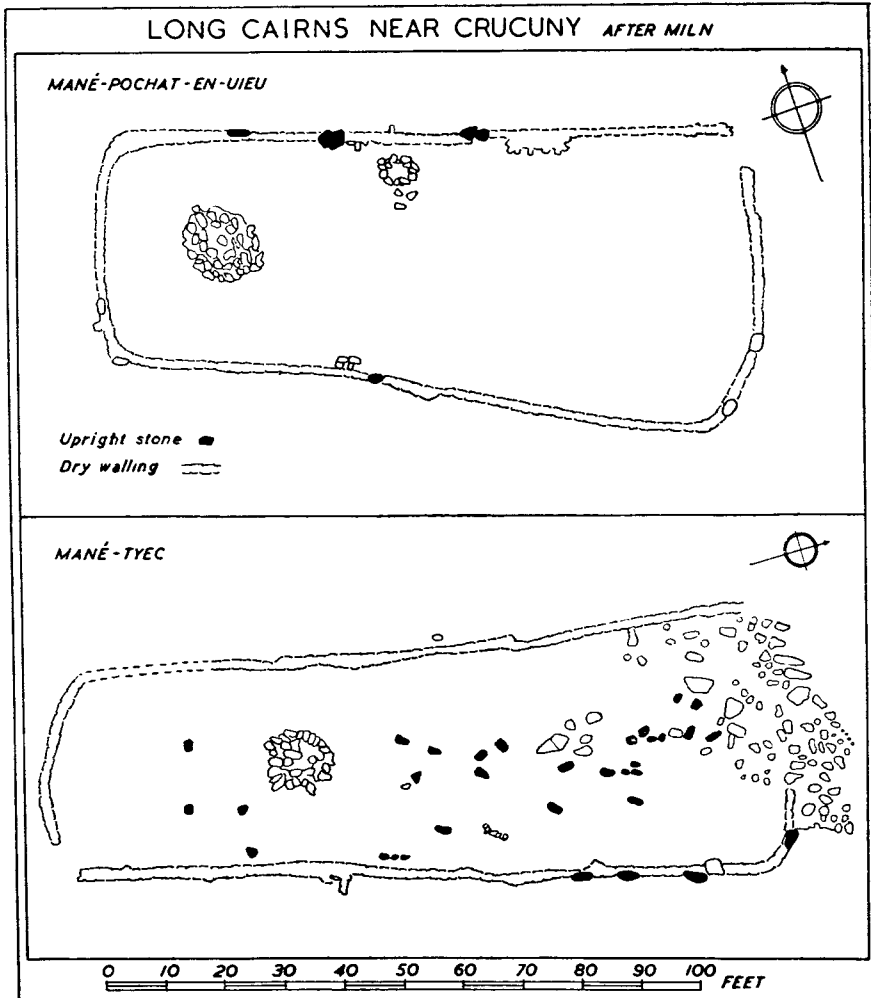


FIG. 3

hafted axe.<sup>8</sup> Fragments of pottery and flint flakes were found scattered throughout the cairn and in the 'cists', but in cist 52 of the original

<sup>8</sup> *Corpus* pl. 6.

## THE LONG BARROW IN BRITTANY

report, and as indicated on the plan in FIG. 1, two pots were found (nos. 1 and 2, FIG. 4), one within the mouth of the other, while in cist 17 was found vessel no. 3. Finally in cist 35 was found part of a flat-based pot, no. 4, illustrated in the original report.

The scanty finds from Manio 5 seem to have included sherds with horizontally perforated lugs, one with a double row of small applied knobs just below the rim, and one with rough incised ornament, all from outside the revetment. A triangular arrowhead was found in the circular structure, and coarse sherds scattered elsewhere in the mound.

The somewhat indeterminate pottery from the Crucun group was found mainly along and usually outside the walls, and included sherds of round-bottomed bowls, perforated lugs, and some sherds with ornament in incised and pointillé technique, illustrated in *L'Anthrop.* XLIV, 495.

The material enumerated above—seven monuments and some exiguous grave-goods—seems little enough to work on, yet all the evidence points in the same direction. The structures are clearly not megalithic in the true sense, and it has been sometimes urged that the closed cists in the barrows represent a degeneration, and that they are at the end of a devolutionary series which begins with such tombs as Ile Longue. But it does not really seem necessary to assume that these cists were inspired by the great megalithic tomb series that comes to Brittany from Iberia. Making a box of small stones to contain the remains of the dead is an idea as obvious in a stony country as is digging a hole in regions of softer subsoil, and the practice may have developed independently of the complex ritual implied and the architectural technique demanded by intrusive cupola tombs. The cist implies a difference of ritual which is important: in such burials the grave cannot be

‘ . . . broke up againe

Some second ghest to entertaine ’

as can a passage-grave—this may be a degeneration, but (to continue the Donne quotation) may not such cists belong to a time in Brittany before

‘ . . . graves had learnt that woman-head

To be to more than one a Bed.’

The position of Manio 1 under the alignments of Kermario is strong evidence for an early date for the type. The exact chronological position of the Carnac alignments is unfortunately uncertain, but on general principles ‘ we cannot ’, as Forde remarks, ‘ claim that

## ANTIQUITY

the alignments are later than the megalithic culture as a whole'. It is hardly possible to dissociate the Kennet Avenue at Avebury from some ultimate connexion with the Carnac series, and here we have definite evidence for a date in the 'B' beaker phase—a period which chronologically cannot be far removed from the Breton bell-beakers, which

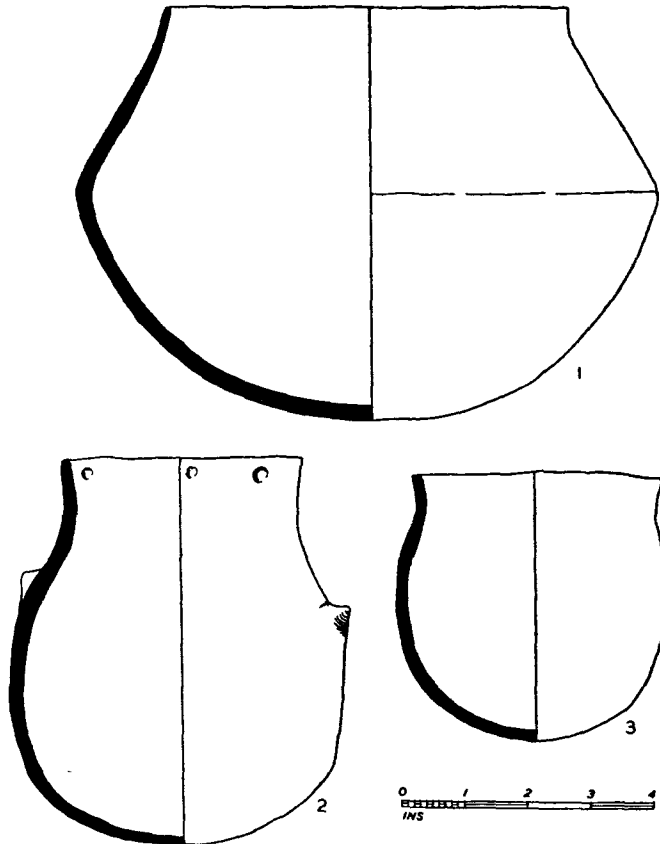


FIG. 4. POTTERY FROM LONG CAIRN AT MANIO (No. 1)  
(Musée Miln, Carnac)

may indeed, as Grimes hinted in 1931,<sup>9</sup> be the parents of our Wessex type of s-profile 'B' beaker (Abercromby's Type Bi). Were this in fact

<sup>9</sup> *Proc. Prehist. Soc. East Anglia*, vi, 348n. The axes of jadeite and allied stones, of Breton type, from various British sites may also be quoted. Cf. Crawford in *L'Anthrop.* xxiv, 641, and map in *Proc. Prehist. Soc. East Anglia*, vii, 154.

PLATE I



MANIO I FROM THE WEST SHOWING MENHIR AT EASTERN END (see p. 413)  
PLATE I IN *ph* C. M. Pigott

PLATE II



PERISTALITH OF LONG CAIRN AT MANIO (No. 3) LOOKING NORTHWEST, WITH SIGNS OF TORICOURT SITTING ON RIGHT  
(see p. 41)

PLATE III



PERISTALITH OF MANIO 3 LOOKING ALONG SOUTH WALL EASTWARD  
(see p. 444)

PLATE IV



LONG CAIRN AT MANIO (No. 5) FROM THE SOUTH (see pp. 414-5)

## THE LONG BARROW IN BRITTANY

the case, we might see in Avebury evidence of Breton contacts, both in structure and ceramic, in the period of the Carnac alignments.

The pottery gives support to an early dating. In Miln's excavations in the Crucun group sherds were found, as we have seen, along the walls of the cairns, some with ornament which might be compared with the style of the *vase-supports* (Chassey II), which would imply a date well within the main Breton megalithic period, but the circumstances of their discovery leave it possible to regard the sherds as secondary, though such an interpretation, uncorroborated by other evidence, would be dangerous. On the other hand the Manio material is susceptible of an earlier dating.

The vessels illustrated in FIG. 4 stand apart from the general series of megalithic wares in Brittany by reason of their simple bag-like forms, their dark leathery smoothed surface, and their lack of ornament. They stand in fact nearest of the Breton pottery to the 'undifferentiated ancestral continuum' of the Westischekeramik postulated by Childe and equated by Mrs Hawkes with Vouga's Neolithique Ancien and the undecorated wares at the Camp de Chassey, and with our English Neolithic A1. Indeed Vouga has himself expressed the belief that the Manio vessels are the equivalents of his earliest period in the Swiss lakes.<sup>10</sup>

It is hardly necessary to cite parallels to the Breton pots from Neuchâtel: even the flat-based vessel<sup>11</sup> can be compared with an example from Port-Conty,<sup>12</sup> and the sherd from Manio 5 with applied knobs finds parallels in Vouga I at Port-Conty and Cortaillod,<sup>13</sup> although the type persists and flourishes in later periods.<sup>14</sup> The triangular arrowhead from the same cairn is again a type of Vouga II, but two examples are known from the lower level.

It thus seems impossible to escape from the conclusion that we have here the Breton representatives of this early Neolithic culture ;

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<sup>10</sup> Quoted by le Rouzic in *L'Anthrop.* XLIV, 489.

<sup>11</sup> *Carnac, Fouilles faites, etc.* pl. VII, 4.

<sup>12</sup> *ANTIQUITY*, 1928, II, 405, fig. 6c.

<sup>13</sup> *Neol. Ancien*, pl. XIV, 6; *ANTIQUITY*, II, 406. The close similarity of these illustrations however suggests that they may represent the same sherd !

<sup>14</sup> Middle Neolithic at Auvernier (*ANTIQUITY*, II, 397); Chassey II at Nécropole de Cantepredrix (*ANTIQUITY*, 1930, IV, 33) and at Fort Harrouard (*Cinq Années*, 127, 129); with incised ware at Croh-colle (*L'Anthrop.* XLIV, 496). The examples from Chassey itself (*Déchelette*, I, 555, nos. 15 and 20) are presumably late, and the same may be said of the vessel from Er Mar, Riantec (Du Chatellier, *La Poterie Préhistorique*, pl. 7, no. 9).



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the simple types of which the carinated burnished bowls of the megaliths are the stylized descendants, the native ceramic persisting side-by-side with intrusive wares from the south and west. We may thus have to modify Mrs Hawkes' chronological table,<sup>15</sup> and interpolate a Neolithic culture in Brittany before the carinated bowl-Chassey II complex—a culture which must stand in some fairly close relation to our Neolithic Ai, since both would be but slightly divergent specializations from the original stock. Mrs Hawkes, in discussing the spread of the Vouga I culture, brings it to Britain by an unspecified route across France which however in her view 'certainly did not touch upon Brittany'.<sup>16</sup> If we are to attempt to connect our southern English long barrows (apparently of Neolithic Ai. culture) with the long cairns of the Morbihan, some Breton connexion in pottery is obviously to be sought for, and while the writer agrees with Mrs Hawkes in her contention that the main stream of Neolithic culture reached England by some route eastwards of Armorica, yet there is evidence that it is to Brittany that we must look for certain features in our southwestern Neolithic culture.

Miss Liddell's five seasons' excavations at Hembury Fort in Devonshire, the last reports of which have just been published,<sup>17</sup> have brought to light an extremely important Neolithic culture which at an early stage was seen to possess certain individual ceramic traits that distinguished it from the normal Neolithic Ai culture to which however it obviously belonged. First of these was a total absence of any ornament, even the simple pin-prick and scored decoration which occurs at the lowest levels of Windmill Hill being absent, but second and more important was the occurrence of a type of lug or tubular perforated handle with expanded ends, which the writer distinguished as a 'trumpet-lug' in 1932.<sup>18</sup> A single poor example of this type of handle was found at Windmill Hill, but at Hembury it was present as a recurrent feature, the finest example being on a bowl of fine burnished red ware, the grit in the paste of which was identified as of Dartmoor origin, some twenty miles west.<sup>19</sup> Although nothing comparable was

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<sup>15</sup> ANTIQUITY IV, 41.      <sup>16</sup> *loc. cit.*, 40.

<sup>17</sup> *Devon Arch. Ex. Soc.*, 1931-37.

<sup>18</sup> *Arch. Journ.* LXXXVIII, 76.

<sup>19</sup> *D. A. E. S.*, *Second Hembury report*, 93; *Third report*, 175. The steatite bead, broken but apparently originally of a type characteristic of Vouga I at Neuchâtel, may be cited as another exotic feature at Hembury. (*Third report*, pl. xvi and p. 182. Cf. Vouga, *Neol. Ancien*, pl. xvii, 17 and p. 48).

## THE LONG BARROW IN BRITTANY

found among the Neolithic pottery from the Legis Tor huts on Dartmoor, similar sites still further west, on the slopes of Carn Brea in Cornwall, yielded Neolithic pottery of Hembury type including a trumpet-lug.<sup>20</sup> No other sites in the extreme west are known, but turning eastwards we find at Maiden Castle in Dorset a Neolithic culture which so far as can be judged in advance of publication seems closely to resemble that of Hembury, and certainly includes trumpet-lugs. Axes of Cornish stones on this site emphasize its western connexions.<sup>21</sup>

These sites, together with one or two others exhibiting less striking peculiarities but apparently culturally identical,<sup>22</sup> constitute a distinct sub-group within our Neolithic A culture, the type-fossil being the trumpet-lug. This is a form of handle which does not appear in the simplest Vouga I pottery: it is clearly a developed form. It occurs however with plain Neolithic ware at the Grotte de Saze, Gard,<sup>23</sup> and at the Camp de Chassey,<sup>24</sup> where the numerous examples are probably to be associated with the undecorated wares of the early phase distinguished by Mrs Hawkes. Its absence at Fort Harrouard again suggests that it is an early feature in the Chassey culture, and probably of central and southern French origin.

In the museum at Carnac is a group of pottery from a rectangular stone cist under a round cairn at Castelic,<sup>25</sup> north of Carnac (FIG. 5). So far as the structure of the cairn is concerned, no connexion with the long cairn series described above can be claimed, and the place given it by le Rouzic in his typological scheme can only be regarded as illusory. The pottery, however, with its simple lugged pots, strongly suggests affinities with that from Manio rather than with any of the main megalithic series, and includes an excellent example of the trumpet lug. On the strength of this group we must, it seems, admit that the trumpet lug may form a feature of the earlier Neolithic pottery

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<sup>20</sup> *Journ. Royal Inst. Cornwall*, XIII, pt. 1, 92. The sherds are at Truro, and the writer is grateful to Mr Lindsay Scott for directing his attention to their importance in this connexion.

<sup>21</sup> *Antiquaries Journ.* 1936, XVI, 266.

<sup>22</sup> e.g. Haldon, Devon (to be published shortly; cf. *Hembury Fort Exhibition* 1936 (Royal Albert Memorial Mus., Exeter, 1936, p. 13); Holdenhurst Long Barrow, Hants (*Proc. Prehist. Soc.* III, 1937, 1-14), and probably Corfe Mullen, Dorset (J. B. Calkin Coll.—to be published shortly).

<sup>23</sup> St. Germain Museum. Noted by the writer in 1935.

<sup>24</sup> St. Germain Museum, cf. *Fifth Hembury report*, pl. xxxv.

<sup>25</sup> *L'Anthrop.* XLIII, 228.

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of Brittany, and a further connexion between this region and southern England becomes apparent.

We are, however, confronted by several difficulties. The Castelleic tomb is anomalous, and typologically of uncertain date, unless one defines its chronological position by admitting the early character of the pottery, which seems almost an inevitable conclusion. It should be remembered too that, as noted by Schuchhardt,<sup>26</sup> at least one low round barrow is overlaid by the Kerlescant alignments, and there are hints in England that Neolithic A round barrows may not be unknown, and not

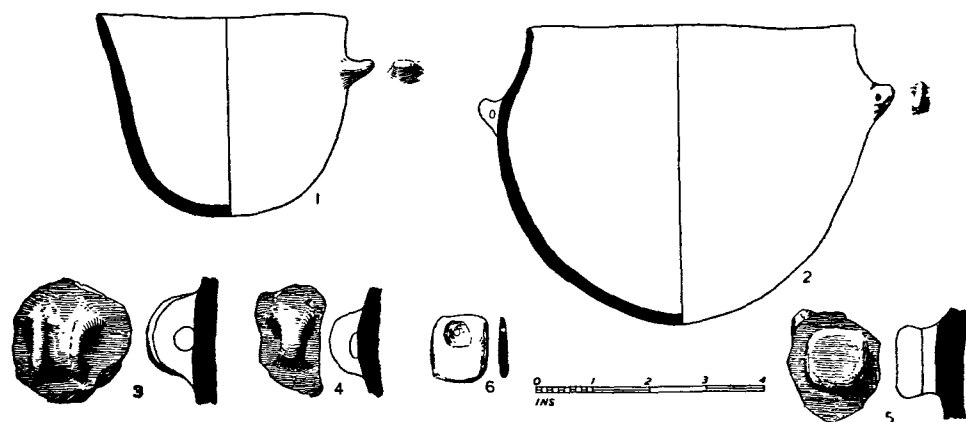


FIG. 5. POTTERY (1-5) AND STONE PENDANT FROM CIST AT CASTELLEIC  
(Musée Mém. Carnac)

necessarily to be explained as the result of 'influence' from Early Bronze Age sources.

Again, on the present evidence, the distribution of 'Hembury Ware' and long barrows in southern England, although overlapping, is not wholly concordant, the more westerly pottery sites being in regions where long barrows are practically speaking absent (although low mounds of the type of Manio 1 may still be awaiting discovery in Devon by careful field-workers). The problem is therefore by no means solved, but the evidence does permit of a working hypothesis which appears to fit in with our present state of knowledge of the ceramic and megalithic sequence of northwest Europe.

It we admit the validity of placing the Manio and Castelleic pottery as equivalent to Vouga I, we begin our Breton ceramic series earlier

<sup>26</sup> *Alteuropa*, 1926, 68-70.

## THE LONG BARROW IN BRITTANY

than Mrs Hawkes would allow in 1934. In the present writer's opinion such a basic culture may well have been established in Brittany at approximately the same time as the inception of the Neolithic A culture in England, and he would see in the Hembury ware evidence of cultural contact. The incised wares of Brittany, as Mrs Hawkes demonstrated, are related on the one hand to the south French ware à *cannelure*, and on the other to the west Scottish-north Irish group of decorated vessels. In south France this ware is chalcolithic, but in one instance at least in Brittany, pre-beaker. While it survives in the Morbihan side-by-side with beakers, one should note in this connexion that not only is it pre-beaker in three sites in Scotland<sup>27</sup> and one in North Wales,<sup>28</sup> but in one tomb in North Uist is earlier than a cup ornamented in the Chassey II style;<sup>29</sup> a type of ware which is itself pre-beaker at the Grotte de Bize, although in Brittany hardly anterior to and in south England represented by pottery which follows immediately upon the beaker phase. It seems probable that this unornamented Neolithic ware stands in Brittany as ancestral to the smooth burnished bowls which form ancillary grave-vessels to the beakers: indeed at Kervilor a bowl with incised pendant loop ornament in the style of Beacharra was associated with an unornamented bowl of fine polished grey ware with a diminutive and vestigial trumpet-lug.

The writer has elsewhere suggested that the typical English 'chambered long barrow' (*e.g.* Uley, Notgrove, West Kennet) may be a hybrid product resulting from the insertion of a passage-grave (or as Daniel has urged, more correctly a gallery-grave) into one end of a long burial mound. The Breton tombs described above bear structural affinities to the English long barrows without megalithic chambers; it is possible that the barrows usually placed at the end of the Cotswold typological series, with closed cists in the body of the mound (*e.g.* Eyford<sup>30</sup>) may have to be regarded as primitive rather than degenerate. (The grave-goods from Eyford could in fact be used to support an early dating, a Neolithic A bowl being found in cist F, and a beaker being demonstrably secondary in D. The jet bead from E is difficult to date, as its closest parallel, from Notgrove, was not in significant association,

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<sup>27</sup> At Rudh' an Dunain, Skye, *Proc. Soc. Antiq. Scot.* LXVI, 198-9; Clettraval, North Uist, *ibid.* LXIX, 500-16; Unival, North Uist (unpublished, information from Mr Lindsay Scott).

<sup>28</sup> At Lligwy, Anglesey. *Arch. Camb.* 1933, 68-72.

<sup>29</sup> At Unival (v. note above).

<sup>30</sup> *Long Barrows of the Cotswolds*, 94-97.

CHAMBERED CAIRN AT KERIAVAL, CARNAC. SOUTH BRITTANY

N.B THE OUTLINES OF THE  
MOUND ARE SKETCHED

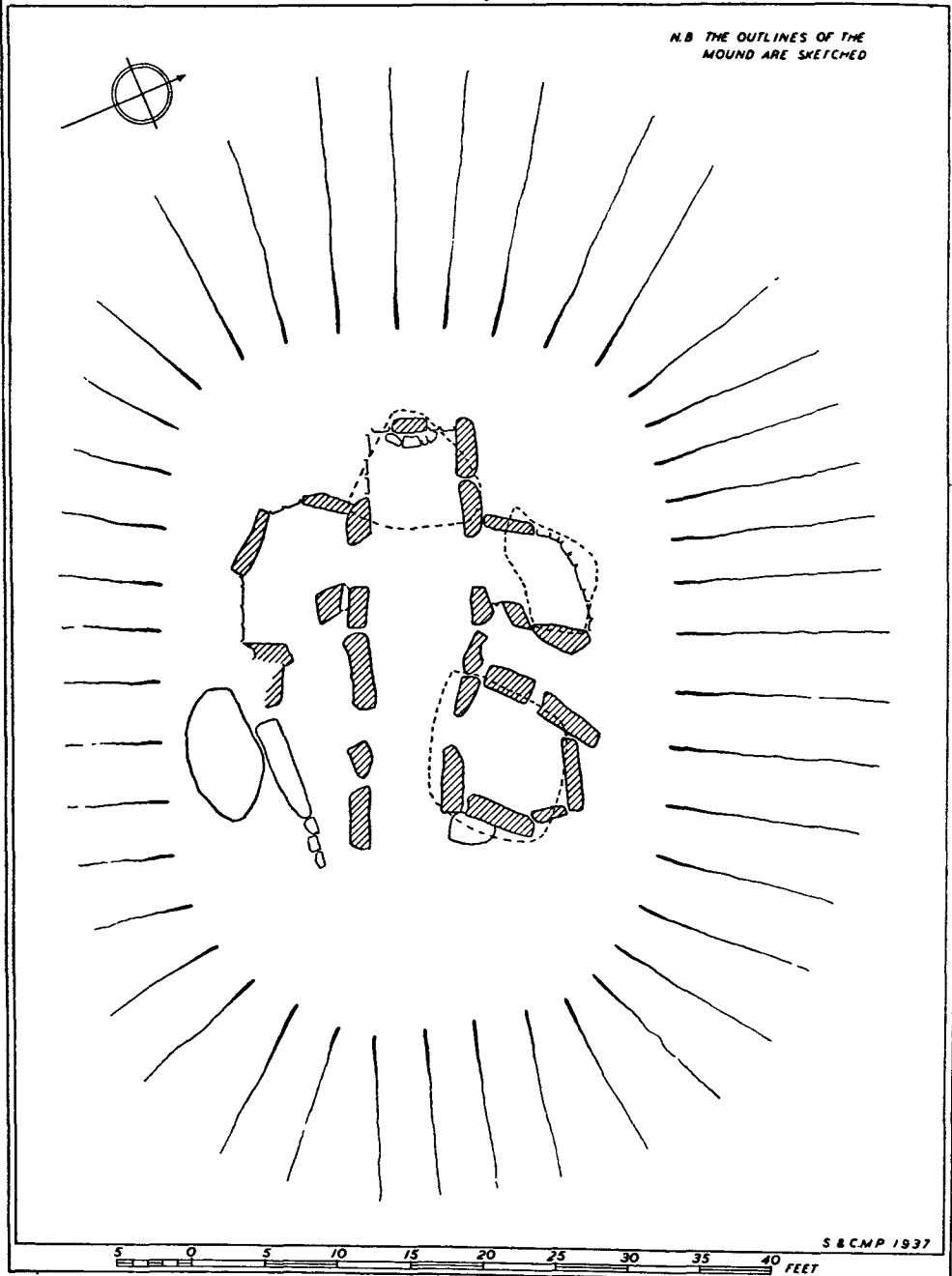


FIG. 6

## THE LONG BARROW IN BRITTANY

but the presence of a jet bead at Hembury<sup>31</sup> should be borne in mind in this connexion). The circular structures in Manio 5 and at Crucun, may recall the somewhat analogous construction at Notgrove, while the menhir at the eastern end of Manio 1 can be paralleled at Gatcombe (Tinglestone) and possibly at Lyneham in the Cotswolds,<sup>32</sup> and would appear to have had wooden representatives at Thickthorn (Dorset),<sup>33</sup> Durrington<sup>34</sup> and Wexcombe<sup>35</sup> (Wilts), and Badshot (Surrey).<sup>36</sup>

In Brittany it is perhaps possible to regard the insignificant cairns of the type of Manio as ancestral to the monstrous long cairns of Mané Lud, St. Michel or Moustoir, which could be claimed as the survival of the long cairn tradition side-by-side with the great passage-graves, and influenced by the prevalent megalomaniac passion for huge size. The Manio type of long cairn may have a wider distribution than published examples suggest: among the Lukis MSS Mr Crawford has found a plan of an analogous cairn on La Grée de Cojou, St. Just, Ile-et-Vilaine, surveyed by Sir Henry Dryden and W. C. Lukis in July 1867. In one instance, a fusion analogous to that postulated for England would seem to have taken place, for at Grah-niol le Rouzic's recent clearance of the site has revealed a gallery grave with one lateral chamber at one end of a long mound, the gallery only occupying one half of the total length. Since, as Forde and more recently Daniel have urged, the transeptal plan of the Notgrove type appears to have an origin in such chambers in Brittany as Keriaval (FIG. 6), the suspected fusion may have taken place there, and these barrows in England may in fact represent a movement independent of, and probably a little later than, that producing the Dorset and south Wilts group, although the English evidence seems to run counter to any suggested line of approach (e.g. the Bristol Channel) which would make the long barrows of South Wales ancestral to the Cotswolds group.

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<sup>31</sup> *Third Hembury report*, pl. xvi, p. 181.

<sup>32</sup> *Long Barrows of the Cotswolds*, 134, 163.

<sup>33</sup> *Proc. Prehist. Soc.* II, 77-96.

<sup>34</sup> Hoare, *Ancient Wilts.* I, 170. 'On reaching the floor of the long barrow we found a circular cist like a little well, but it contained no interment; from this well-like cist, a tunnel, like a chimney, ascended nearly to the top' [of the barrow]. This clearly represents a circular post-hole, with the decayed post leaving a hollow in the packed rubble of the mound.

<sup>35</sup> Excavated by Mr O. G. S. Crawford and Dr E. A. Hooton in 1914. The unpublished section of the barrow, which Mr Crawford has kindly shown me, presents a feature strongly suggesting a large upright post at one end of the mound.

<sup>36</sup> *Surrey Arch. Soc. Colls.* 1937. cf. also *Proc. Prehist. Soc.* II, 247; III, 173.

## Umm el-Jamal

by GEORGE HORSFIELD

**F**OUR kilometres within the boundary dividing the British Mandated Territory of Transjordan from Syria, 1000 metres above sea level, and on the northern limit of the plain south of the Jabal Druze (Hauran), lie the ruins of Umm el-Jamal. The city is twenty kilometres from Mafrak, where the pipe-line and road from Iraq cut the Hijaz railway on their way to Haifa on the Mediterranean. The Druze Mountain dominates the plain from the north and this monument lies at the foot, the most westerly of a series of ruined basalt-built towns and the most interesting.

The surrounding plain is not a desert of sand. Its ancient fertility is shown by the old field boundary stones, now wasted by wind-erosion and neglect, leaving a dry exhausted soil thinly sprinkled with desert plants and strewn in parts with basalt boulders grey with lichen. Nowadays the rainfall in these parts is negligible and an attempt some years ago to restart cultivation around Mafrak failed ; for the soil was just dust, carried off by the wind in great clouds when ploughing was attempted. Mafrak is now inhabited, water having been found some hundreds of metres down by boring ; and it was the outpost from which men and materials went forward to build the road and pipe-line now stretching down the corridor between Syria and Saudi Arabia to Iraq. Ancient trade routes converged in this neighbourhood and the name 'Mafrak' signifies the 'Junction'. It was in antiquity a strongly fortified site and later a station on the Haj route.

Umm el-Jamal, the mother of camels, known by no other name, has none of the formal lay-out or architecture which distinguished Syrian Graeco-Roman cities of the 2nd and 3rd centuries A.D., although contiguous and contemporary with them. Curiously complete in itself, with a continuous life from the 1st century B.C. to the 7th or 8th century A.D. it was then completely abandoned. Of its history we know nothing except what the monuments tell. With the political collapse of the Seleucids and the Ptolemies in the 1st century B.C., Petra, the metropolis of the Nabataeans, spread its influence outwards, backed

# PLATE I



## UMM EL-JAMAL: PLAN OF LAYOUT FROM THE SOUTH

Among the buildings shown are the :—  
 West church outside wall and Gate of Commodus adjoining  
 East gate, north of southern block and adjoining Maschecos church by Birket  
 Southwest gate in centre of block  
 South gate in centre of wall

*Plates I-IV, Royal Air Force Official, Crown copyright reserved*



## PLATE II

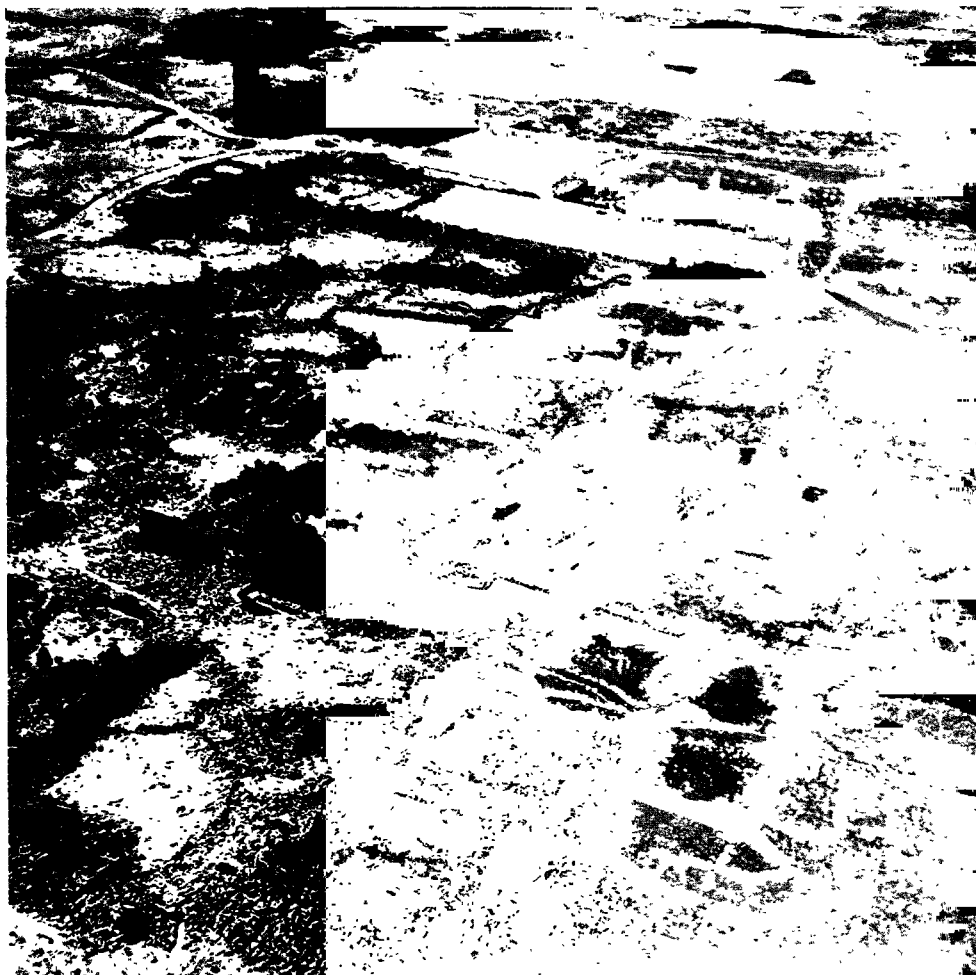


UMM EL-JAMAL: LOOKING NORTH ON WEST SIDE

West church outside wall, Gate of Commodus, Julianos church right top corner, and below, the Praetorium.  
Blocks of houses west and south of the Praetorium

# PLATE III

Barracks



UNM EL-JAMAL

In foreground eastern block of houses ; in the background the west block Below, the barracks, on right the Numerianos church. Below, the double church and houses. In foreground Mascheos church, east gate and southeast church

PLATE IV



UMM EL-JAMAL

East block of houses from west. In right foreground the corner of Numerianos church  
Double church centre left Beyond wall, small church

## UMM EL-JAMAL

by the wealth that flowed into it as the distributor of the Far Eastern trade to the west. In the 1st century A.D. the kingdom of Nabatene extended north from the Red Sea to Damascus, to the boundaries of Idumaea and Palestine on the west and far down into Arabia on the east. The Jabal Druze the Nabataeans held in the 1st century B.C. Finally Trajan annexed their western territory in A.D. 115 and formed Provincia Arabia with its capital at Bosra, a few kilometres north of Umm el-Jamal. Rabel II, the last king of Nabatene, died there in exile.

The Nabataeans had a distinct civilization, a blend of Hellenism and their own native culture, which produced Petra, the towns and fortresses north along the western edge of the desert, and the monuments of the Jabal Druze.

Water was supplied to the town from the western wadi which rises in the northern mountain fed by rain and snow. In it, to the north, was built a barrage from which a covered masonry canal ran obliquely to the northwest corner of the town ; along the north side, outside the wall, and down the eastern side to the southeast corner, with branches leading off it to fill interior reservoirs. As in villages and towns today in the highlands water was collected once a year and that sufficed.

The air plan (PLATE I) shows the town as a rough parallelogram from south to north, about 800 metres long, and from 300 to 500 metres wide, lying on a featureless plain with a dry wadi to the west. Buildings are grouped in compact masses, east, west and north and a scattered group lies like a spine down the middle. Around the buildings the ground is divided into a crazy pattern of enclosures ; some ancient, others made by the Rowallah Bedouin who pass this way each spring on their migration northwards with their herds of breeding camels, and use the whole ruin as a khan, camping alongside whilst water and fodder last.

The external face of each quarter or block of buildings forms a defensive wall. Where buildings did not exist a wall without bastions or towers joins on to the next block and so from block to block forming an irregular enclosure. On the west is the Gate of Commodus, dated A.D. 176 (PLATE II). In the centre of the south wall, between two small towers, is another ; whilst further west, near the corner, is another in the middle of the houses. One has been noted at the north end of the block on the east side and two more to the north. The modern Caucasian villages of Sukhni and Zirka to the south, on the edge of the desert, have or had the same arrangement on a smaller scale ;

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houses packed close together around the perimeter, leaving the 'centre more or less free and open, thus forming a defensive enclosure against desert raids. The same seems to have been the origin of the defences of this place, to make it proof against surprise but not against military operations. This applies to the walls of the 1st century A.D. at Jerash also, though these are more solid and bastioned.

Many churches, houses and two civil buildings have been noted ; the 'Praetorium' dated A.D. 371 (see PLATE II) at the northeast angle of the west block of houses ; and the 'Barrack', dated A.D. 412, a large freestanding building built around a court, with a chapel projecting from the east wall and a tower on the southeast corner (PLATES III and IV).

Basalt was the sole structural material. Girder arches, corbelling and the employment of great slabs for floor and roof, showing all the principal details that were developed in this intractable material and used throughout southern Syria, are exemplified in a hundred different buildings. These peculiar methods of construction, developed from the working character of the material, appear first in the architecture of the Nabataeans. At Petra girder arches were employed in the 1st century B.C. Masonry shows skilled workmanship and a developed technique to suit the material. Carved ornament is absent and no trace of foreign craftsmen can be remarked.

The thrust of arches was taken by interior buttresses, and a peculiar system of corbelling developed, in which two or three rows of corbels project from the walls with long slabs resting on the tips of the upper row to form floors and roofs. Buildings internally and externally were covered with coatings of stucco, finished with a polished surface on wall, ceiling and floor, hiding structural features and turning the ugly stretch of corbelling into an elegant cove. Doors and window shutters were of basalt. The tradition persisted and appears in the medieval castle of Azrak ; whilst other of the structural inventions of the Nabataeans are employed in the body of that castle.

Large tall houses built round courts are in a majority, half the house consisting of two wide high-arched rooms superimposed in two storeys ; and in the rear four storeys of narrow rooms, flat roofed and floored with slabs of stone on the cantilever principle. Ornament was meagre and only in the 'Praetorium' was an order employed. In plan, this is a combination of a Roman and oriental house. Recognizable are the reused remains of two Nabataean temples and large numbers of inscribed stelae from destroyed Nabataean tombs. The majority of the later inscriptions are in Latin and Greek, but the classic art that

## UMM EL-JAMAL

flourished in the rest of Syria under the Roman Empire had little visible influence. Under later political and Christian religious influences Greek and Roman personal names were adopted.

The fifteen ecclesiastical monuments follow two main types—halls and basilicas—with considerable variety in plan and structure. Some hall-churches are long and narrow with girder arches to carry the flat roofs. Others are nearly square in plan and have a single arch. The bema is sometimes square, sometimes apsidal, with the curve showing outside ; sometimes concealed by two small projecting aisle rooms. The two types of apses appear also in basilicas. If square piers carry the nave arcades then they are more widely spaced than when pillars are employed. If the nave is narrow then all the walls are brought up to one level and roofed with slabs. If a clerestory is used the aisles are roofed with stone and the nave with wood. Apses have semi-domes but none remains standing. Many of the churches are connected with buildings and presumably were monastic.

Two churches only are dated ; that of Julianos, A.D. 345 (PLATE II) is notable as the earliest church in the world with a dated inscription. It is of the hall type, long and narrow in plan, with a projecting apse ; nine transverse girder arches rise from slightly projecting wall piers to carry the flat roof. The apse had a semi-dome. Every alternate bay was pierced by a square window set high up in the wall. On the north side are rooms with three doors opening into the body of the church. On the south is a court surrounded by buildings and a portico runs the length of the south wall, from which three doors open into the church ; there being no direct entry to the church except through buildings. The 4th century church at Jerash has a similar arrangement of doors and it is considered there that they were for the use of the catechumens. The present custom of the Orthodox Church in separating the sexes inside the church is to group the women on the north.

A large church, conveniently called the 'Cathedral', of the basilican type, lying alone northeast of the 'Praetorium', is dated 557. It has an apse squared off on the outside by two small aisle rooms. A narrow west porch covers the three doors. It is not remarkable in plan and is a typical basilica without the western atrium that nearly all the churches at Jerash have. There is a time-lag ecclesiastically between the two places in planning. Prothesis and diaconicon appear at Jerash in the 6th century in response to Conciliar doctrinal enactments which were expressed in public worship by an elaboration of ceremonial and brought about alterations in plan and structure.

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The 'West Church' (see PLATE II), one of the largest and best preserved of the churches of Umm el-Jamal, is just outside the west wall south of and adjoining the west gate (Commodus). It has its own enclosure joined on to the town wall, and is a basilica of four bays, the arcades carried on square piers with an apse and aisle rooms squared off on the outside. At the west end two towers project at the ends of the aisles, joined by an arch to form a porch covering the single door to the nave. The aisles have doors in the second western bays. These are roofed by corbelling and the arcade walls are carried up to form a clerestory, pierced with a square window in each bay, and the roof was of wood. The nave floor was of mosaic in four colours, of a simple pattern.

In plan and elevation this church is foreign to the region and conforms to structures common in the north of Syria. It may have been a monument to the fierce religious conflicts that tore the Church in Syria in the 5th and 6th centuries and so excluded from the body of the town for nonconformity.

The basalt architecture of the Jabal Druze (Hauran) has, owing to the reoccupation of the mountain by the Druzes, largely disappeared. Umm el-Jamal, from the fact of its desertion in the 7th or 8th centuries until today, has escaped occupational disasters and remains a collection of ecclesiastical, civil and domestic monuments of many ages, remarkable for their extraordinary state of preservation.

Howard Crosby Butler in his publications of the Princeton University Archaeological Expeditions in Syria in 1904-5 and 1909, (Division II, Ancient Architecture in Syria, section A, Southern Syria, Part III, Umm idj Djimal), has published the fullest account of the ruins and this has largely supplied the basis for the forgoing article.





PLATE I



ISTANBUL: THE LAST TOWER ON THE SEA OF MARMARA (also first of the land-wall)  
*ph.* Gerhard Bersu

# The City-Walls of Istanbul

by ALFONS MARIA SCHNEIDER\*

‘**C**ONSTANTINOPLE is a precious key, worth a whole kingdom ; its possessor will be master of the world’. Napoleon’s prophecy might equally have been made by Constantine himself, the founder of the city. For the chequered history of the Byzantine Empire shows that more than once the mere possession of Constantinople stood between it and destruction. Yet the city’s impregnability did not depend solely on its Roman heritage and its peerless geographical and political position, but owed as great a debt to the genius of the younger Theodosius in constructing an enceinte which, apart from St. Sophia, is today the most impressive monument of the vanished Byzantine power.

Hitherto the only satisfactory account of the walls has been that of A. Van Millingen.<sup>1</sup> Naturally his book—more particularly as concerns their architectural history—cannot solve all the problems which interest us today. It was for this reason, and also because every year the structure becomes less and less secure, that H. Lietzmann initiated in 1928 an elaborate survey with the aid of the *Notgemeinschaft der Deutschen Wissenschaft*: this was continued in the succeeding years by the Istanbul section of the Archaeological Institute of the German Reich, and publication of the final results is now approaching completion.<sup>2</sup>

When Constantine the Great solemnly dedicated his capital on 11 May 330, the city area, four times the size of the Byzantium of Severus, was far from being completely populated. But in the second half of the century the population began to increase so rapidly owing to immigration that by 384 Themistius, the *praefectus praetorio*, could state in a eulogy on the Emperor Theodosius that ‘a new city wall

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\* Translated by Professor R. G. Austin.

<sup>1</sup> *Byzantine Constantinople : the walls of the City and adjoining historical sites.* London, 1899.

<sup>2</sup> H. Lietzmann, *Die Landmauer von Konstantinopel. Vorbericht über die Aufnahme im Herbst 1928.* (Abhandlungen der Akademie Berlin, 1929). Schneider-Meyer, *Die Landmauer von Konstantinopel. Zweiter Vorbericht.* (Sitzungsberichte der Akademie Berlin, 1933).

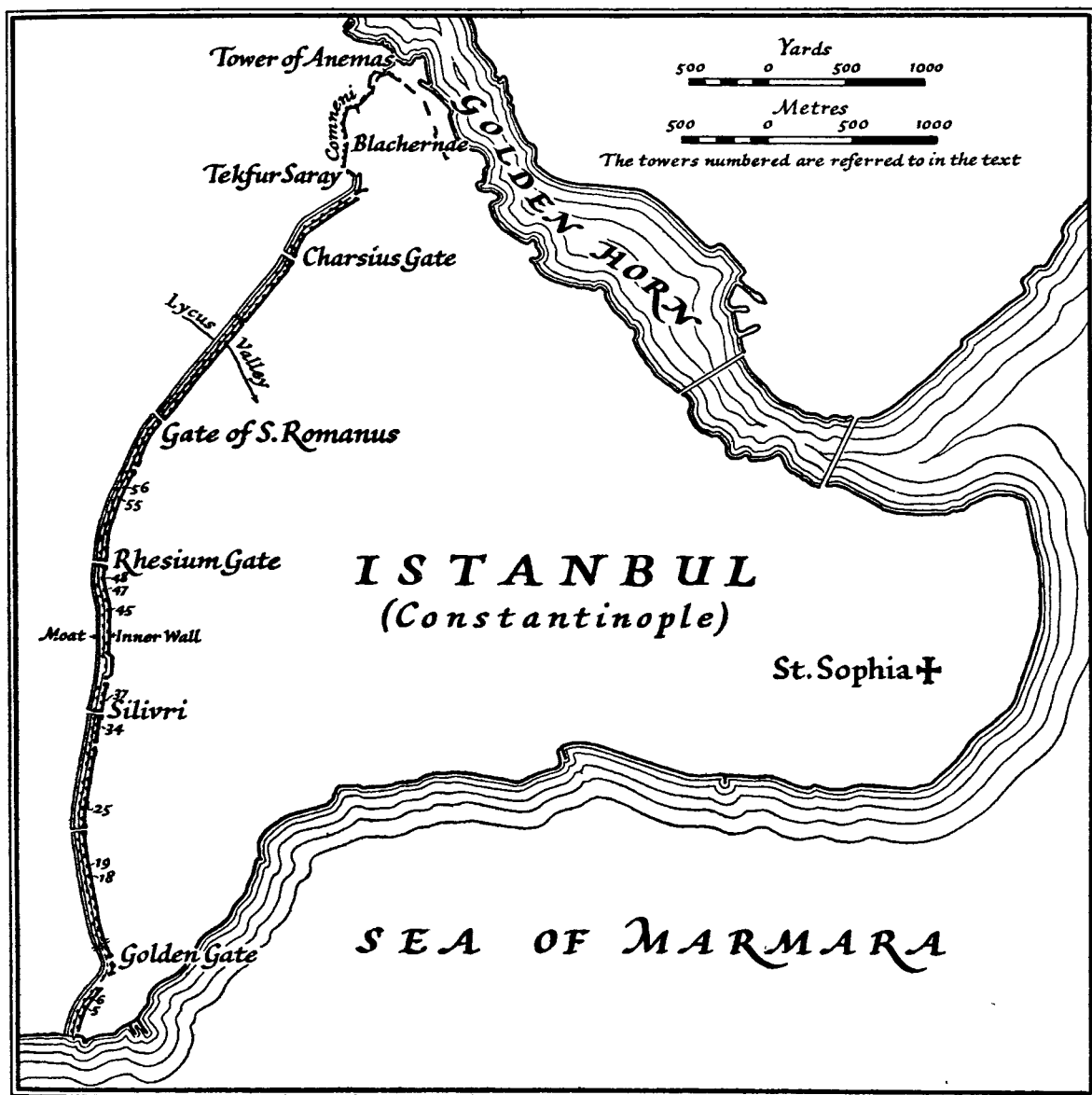
## ANTIQUITY

would probably become necessary next year' (*Oratio* 18). Yet the project took a long time to mature, and it was not until 412-13, when the Illyrian invaders began seriously to threaten the capital, that the building was put in hand at the instance of the regent Anthemius. The structure was certainly more or less complete by 422; a decree of the Codex Theodosianus, dating from that year (VII, 8, 13) assigns the lower storeys of the towers as quarters for military authorities passing through the city. Finally, in 439 the Emperor authorized the building of a connecting wall between the land-fortification and the sea-walls built by Constantine, probably owing to pressure from the robber bands of the Vandal fleet. This undertaking was completed by the Prefect Cyrus of Panopolis.

The stretch of wall leading from the Sea of Marmara to the Golden Horn is about 6.5 kilometres long. Beginning with a marble-covered ornamental tower, it runs from the sea north-eastward as far as the Golden Gate,<sup>3</sup> which stands some 14 metres above sea-level. Thence it goes due northwards as far as Mevlevi hane Kapu (Rhesium gate), at a height of 54 metres, and there takes another sharp bend north-eastwards; from here the ground rises to 68 metres at Top Kapu (St. Romanus gate), then falls to 35 metres in the Lycus valley, and afterwards climbs again to 76 metres at Edirne Kapu (Charsius gate). The part of the wall from Top Kapu to Edirne Kapu is the most liable to danger, firstly because of the lie of the land, and secondly because the stretch immediately south of it projects considerably, so that it offers the most convenient point for a frontal attack. In fact it was here that all the chief attempts on the city known to history were launched, without success however, until 1453. From Edirne Kapu the ground falls to a level of 60 metres at Tekfur Saray; at this point the wall makes a pronounced bend westwards, runs along the slope of a deeply indented valley, and finally descends to the plain at the Golden Horn, at the so-called Tower of Anemas. But the wall proper of Theodosius stretches only from the Sea of Marmara to Tekfur Saray. There it joined the already existing circumvallation of Blachernae, which, as the 14th region, lay outside Constantine's city and therefore possessed its own wall. Only a few remains of this wall are still visible—I have established the identity of one piece of it, in excellent condition, in the so-called prison of Anemas—because in the 12th century the quarter was enlarged and a new wall constructed.

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<sup>3</sup> Plan of the walls, with the names of the gates, in A. M. Schneider, *Byzanz* (Istanbuler Forschungen 8, Berlin, 1936). Topographical map.



THE WALLS OF ISTANBUL

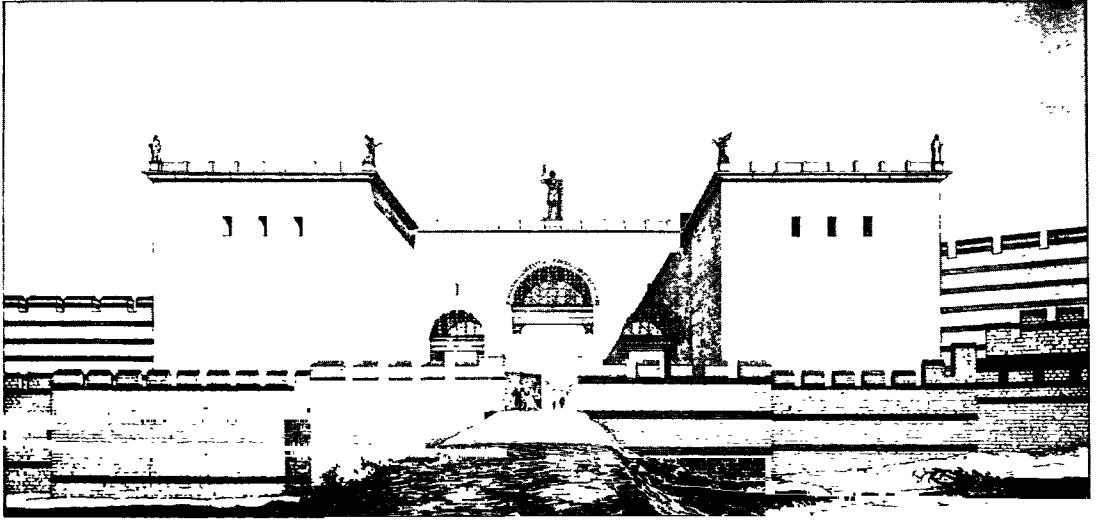
## ANTIQUITY

The land-fortification of Theodosius consists of a main or inner wall (τὸ μέγα τεῖχος) 4.8 m. thick and 11 m. high, with towers at intervals of 50–70 m. At a distance of 14.5 m. is built the προτείχισμα or outer wall, 8 m. high and protected by towers ; 12–15 m. in front of this is a moat (τάφρος) 18 m. broad and about 7 m. deep. The main objective of every ancient fortified position was to prevent the enemy from being able to move up his heavy artillery too near the wall : this aim is effected by pushing forward the lines of defence. Philon of Byzantium (3rd century B.C.) advises that three moats of prescribed breadth should be made in front of the main wall, so that the first line of defence lies some 160 metres from it, and therefore even the best artillery is rendered ineffective. But at Constantinople the main wall and the outer edge of the moat are separated by about 55 metres only. This sufficed, because at that date the efficiency of artillery had considerably declined. On the other hand, the erection of the outer wall and the arrangement of each of the three lines of defence one above the other compensated for the closer concentration of the position. This powerful strengthening of the fortification was needed because of the poor fighting qualities of the army : the material solidity of the architecture had to make up for what the troops lacked in spirit.

This system is fundamentally nothing more than the method of defence particularly recommended by Philon (v. 83.44, 85.22 ed. Schöne), only with a different distribution of forces—the outer work was constructed in the form of an actual wall, and then the main wall was correspondingly heightened. Thus the whole is not only very skilfully arranged and impregnable in the circumstances then obtaining, but also, through its very simplicity, a work of impressive weight and beauty.

The main wall, as prescribed by Philon, is 4.80 m. thick, and its foundation is built down on to the cliff : it was topped with a parapet and battlements. Its general course is straight, but at one point only, between Silivri and Mevlevi hane Kapu, it forms a sigma-shaped bend. The rectangular or polygonal towers (of which there are 96, and another 19 on the wall of Comnenus) are, on the Hellenistic pattern, not built into the wall. Only the upper story was intended for defence-purposes, as well as the tower-platform. On the north side of the main wall, and also of the outer wall, there are many gateways through which a sortie could be made : unfortunately the condition of the walls is too ruinous for their number to be ascertained. The outer wall is only 3.2 m. thick, not of massive construction but broken up into casemates with embrasures ; these casemates could be entered from the level ground.

PLATE II

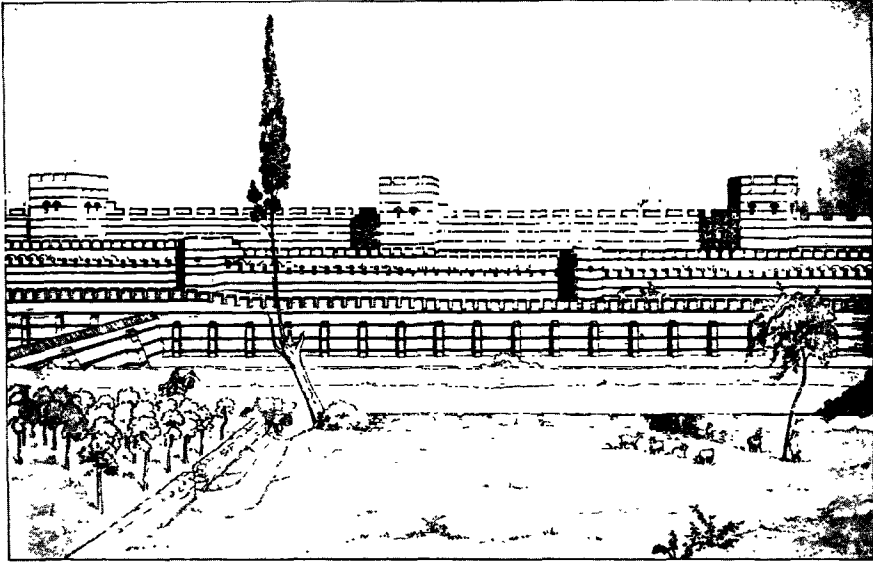


ISTANBUL RESTORATION OF THE GOLDEN GATE  
*after Meyer, Danzig*

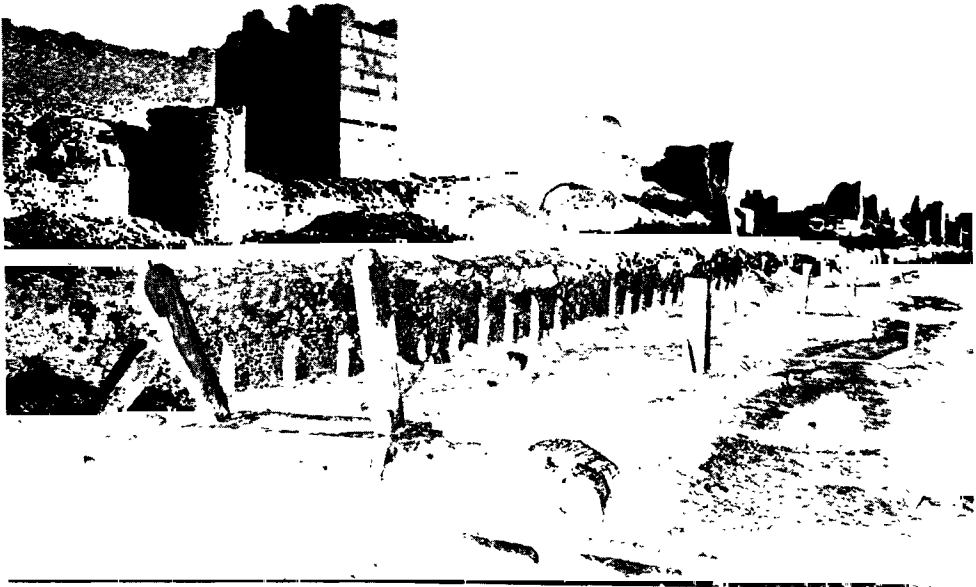


ISTANBUL THE GOLDEN GATE AS IT IS NOW  
*ph. Messbildanstalt Berlin*

PLATE III

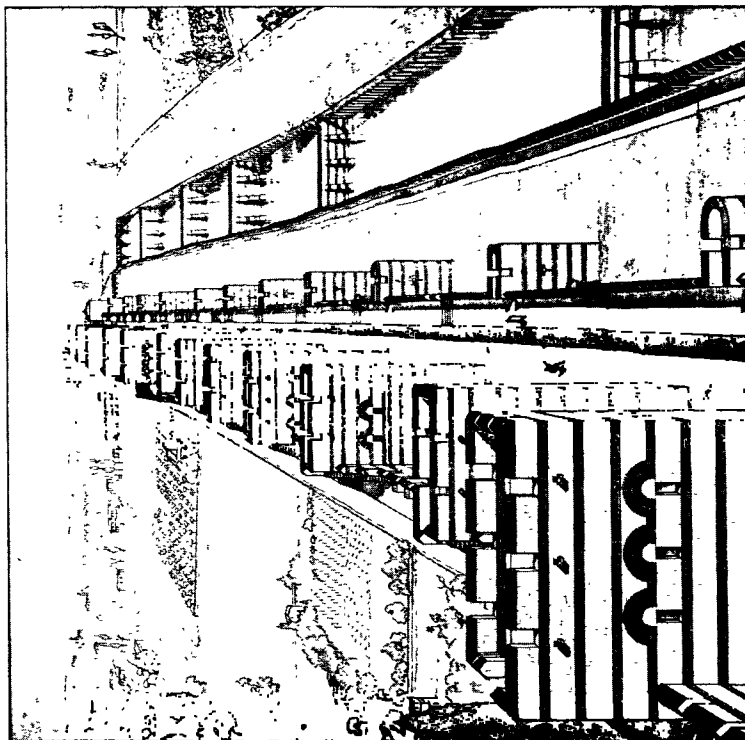


ISTANBUL RECONSTRUCTION OF THE FIRST WALL  
*after Krischen, Danzig*



ISTANBUL ACTUAL STATE OF THE WALL  
*ph Messbildanstalt, Berlin*

# PLATE IV



ISTANBUL: RECONSTRUCTION OF THE FIRST WALL FROM  
LYCUS VALLEY TO THE GATE OF ROMANUS  
*after* Krischen, Danzig



ISTANBUL: VIEW OF WALL SHOWING THREE COMPONENT PARTS  
*ph.* Messbildanstalt, Berlin



PLATE V



ISTANBUL WALL OF COMNENUS, TOWERS 1-3 *ph* Gerhard Bersu



ISTANBUL WALL OF COMNENUS, TOWERS 7-9 *ph* Gerhard Bersu

## THE CITY-WALLS OF ISTANBUL

The gates (7 main and 4 subsidiary) are generally flanked by two towers ; the 'golden gate' (PLATE II), through which the victorious emperor entered the city, was made of marble. A much-discussed problem is caused by the moat with its sluices : was it filled with water or not ? The following points are worth noticing. The sluices are always supported by struts on the outfall or deeper side, which would be superfluous had not the sluice-walls to bear a heavier pressure there. Since, as described above, the course of the wall lies over undulating country, the sluices at the deeper points must necessarily also have supported a greater pressure of water, so that the struts are appropriate. Further, we discovered in the sluice at tower 63 a clay overflow-pipe, which shows that the sluices were intended as dams. In my opinion they served a double purpose : first, in times of excessive rain they prevented the water from the higher ground flowing down into the deepest portions of the Lycus valley, and there destroying the wall, as actually once happened during bad weather. Secondly, in war-time the sluices could be filled with water at critical points so as to make it difficult for the enemy to cross the moat ; but in peace the moat was probably left dry. The walls show a peculiar technique which was not known in the East until the late Roman period : sections of five or more layers of brick alternate with a casing of masonry. The only precedent with which I am familiar is the wall of Nicaea, built by Claudius Gothicus in 269. Probably this method came to the East from Gaul, for it is there that we find the earliest and most frequent examples of it. As a defensive work the wall of Theodosius has really no parallel in late Roman times ; so that as far as I can see, this type of fortification, consisting of a moat and two walls raised in tiers above one another, appears for the first time at Constantinople. However, we must remember that the art of fortification was then at its zenith, and that therefore a brilliant engineer, as the architect of the wall of Theodosius undoubtedly was, could arrive at this innovation only from practical considerations. But it seems to me quite likely that Hellenistic influence may be traced here, for it is certainly remarkable how completely the rules of Hellenistic architects have been carried into practice. This conjecture is the more probable as it was precisely in the 5th-6th centuries that a predilection was shown for transcribing the works of Hellenistic tacticians ; though it is true that the lore thus served up again was in general entirely that of bookmen and never of practical value, a thing which especially strikes us in Vegetius. But once, as suggested by the wall of Theodosius, it may have borne practical fruit.

## ANTIQUITY

We are on firmer ground in considering briefly the influence which the walls of the main city exercised in later times. We may mention here Adalia and Nicaea, whose late Roman fortification was in the middle ages surrounded with outer walls, and the 'triple-walled' Armenian fortification of Mantzikert, which probably also shows the influence of Constantinople. But a particularly striking parallel is to be found at Ani, the Armenian residence of the Bagratids, which on two sides is protected by deep defiles, while only one side is easily accessible from the plain. This unprotected side shows a raised main wall and a lower outer wall ; a moat may have been there, but no trace of it has yet been found. However, Byzantium formed a precedent not only for the East, but also for Norman fortified works.

The massive nature and technical perfection of the new wall made the city practically impregnable, provided always that the structure was kept in good repair. So that we constantly hear of renovation-work necessitated by the ravages of time, and in particular owing to earthquakes. The first great catastrophe of the sort occurred in the autumn of 447, while Theodosius himself was still alive ; it resulted in the destruction of 57 towers. Attila was close at hand, and speedy rebuilding was essential ; in fact the prefect Constantine got the necessary work done in the incredibly short space of 60 days. The earthquake of 16 August 554 damaged the walls near the Golden Gate, and three years later, on 6 December, fresh shocks occurred, especially affecting the stretch between the Rhesium Gate and the Golden Gate. It is with this disaster that we should probably connect the inscription of Justin and Sophia at Mevlevi hane Kapu, referring to a reconditioning of the outer wall, for according to Procopius no further repairs of the walls took place during the later years of Justinian's reign. In 626 the city was fiercely but unsuccessfully attacked by the Avars, in alliance with the Persians. An inscription of Justinian II (beginning of the eighth century) shows that the subsidiary gate south of the sigma-shaped bend was restored. In 713 the ever-increasing danger from the Arabs caused Anastasius II to recondition the city walls, and in particular to equip the shot-storeys of the towers with artillery-pieces. The necessity of these measures soon became clear, for in 717-18 the city was invested on all sides by Maslamah, but the attack was brilliantly beaten off by Leo III and the culture of Europe was thus saved from the Arab invaders.

On 26 October 740, an earthquake caused extensive damage. The emperor immediately put restoration work in hand, and levied a special tax for it : a series of inscriptions refers to this (on towers 5, 7,

## THE CITY-WALLS OF ISTANBUL

18, 19, 25, 34, 37, 45, 47, 48, 55, 56). Under Theophilus (829-42) work was confined to the towers by the Blachernae gate and to the sea-walls. The next catastrophe of magnitude happened in the tenth century, in the earthquakes of 25 October 986, and 9 January 987, when the dome of St. Sophia was destroyed, together with many churches and buildings as well as some of the towers on the walls. Two inscriptions of Basil and Constantine (towers 1 and 36) probably refer to this.

The enlarged wall of Blachernae (the wall of Comnenus, PLATE V) dates from the second half of the twelfth century, stretching from Tekfur Saray to the Blachernae gate. The emperor Manuel caused further reconditioning at various points in the walls, but clearly did not complete the work, for again in 1197 Alexius III had the Charsius gate entirely restored, repairing damage already long neglected, according to the text of an inscription which now only survives in a literary source. Under the Latin emperors (1204-1261) practically no work can have been done on the walls. Michael VIII, immediately after his victory in 1261, had the city walls raised in height, probably restoring the battlements. His successor, Andronicus II (1282-1328) undertook a thorough renovation of the wall, and there is still extant at least a copy of an inscription of 1286 referring to this. Gold coins of both emperors, representing the Virgin encircled by a crown of city walls, were probably coined to commemorate this work. Violent earthquakes occurred in the autumn of 1344, but their ravages were quickly made good by Apocaukos, and the opportunity was taken to add a parapet and battlements to the moat. Further damage was done by the earthquake of the spring of 1354.

Politically, the position of the Byzantine city was becoming more and more unstable. In 1422 the Turks had besieged it, though without success, and their growing power might well cause a wide-spread feeling of a crisis in the immediate future; as far as was possible with limited means, preparations were made to meet it. The chief measure taken was the renovation of the outer-wall; dated inscriptions inform us of the progress of the work, the earliest of those preserved being from Mevlevi hane Kapu. The first dates from 1433, others from 1438, 1440, 1441, 1444, and the last from 1448 (from a tower near the Sea of Marmara). In 1453, when Sultan Mehmed began to invest the city, the advance-works were in good condition—not so, however, the main wall, and although the worst parts could certainly be soon patched up not much trust was now placed in it, the defenders relying entirely on the strength of the advance-wall. On the fourth day after

## ANTIQUITY

the city had been taken by storm, Mehmed ceremonially took possession of it, and the history of the walls entered a new phase. Under the new régime, the conqueror ordered the walls destroyed during the siege to be immediately repaired. This was the more necessary, as he could not foresee the results likely to follow in the West from the loss of the eastern outpost of European culture, and whether he would have to defend his spoils after having won them.

I must pass over here the later history of the walls, and the damage caused by the earthquakes of 1509, 1690, 1754 and 1766. The last extensive repairs were done under Ahmet II. At the end of the eighteenth century Dallaway, the author of the first detailed account of the walls (*Archaeologia* (1803), XIV, 233 ff) found that several towers were ruinous and that the moat had been turned into fields for the cultivation of melons and tobacco. From this time onwards began the uncontrollable and irremediable collapse of this gigantic defence-work, which had shattered the assaults of the migrating peoples, the armies of the Kalifs, the ill-disciplined predatory hordes of the Slavs, Bulgars, and Russians. Yet still, notwithstanding its present state of decay, it bears eloquent witness to the awe-inspiring might and brilliant glory of an empire which for a thousand years protected culture, art and beauty, and had preserved them through the Dark Ages for the dawn of a new day.

### NOTE

We wish to thank Herr Direktor Schede, of the German Archaeological Institute, for most kindly allowing reproductions of the hitherto unpublished restorations on PLATES II, III and IV; and Dr Gerhard Bersu for his help in supplying the other illustrations, some of which are from his own photographs.—EDITORS.

## Notes and News

### THE VINE-SCROLL IN SCOTLAND (PLATES I-IV)

Readers of Dr KITZINGER's recent article (*ANTIQUITY*, 1936, x, 61-71) will have appreciated the importance of the vine-scroll motive in Anglian sculpture. It was of foreign origin even in England, and its occurrence in Scotland is therefore doubly exotic. This fact was recognized long ago (in 1903) by Romilly Allen, to whose magnificent and astonishingly complete corpus (*Early Christian monuments of Scotland*) every subsequent student must be deeply indebted. 'Foliage', he writes (p. 236), 'was essentially a non-Celtic motive in decorative art; and wherever it occurs in Ireland, Scotland or Wales, its presence must have been due directly to Northumbrian, or indirectly to Italo-Byzantine, influence'. Today we should express the same opinion, but in slightly different words. We should say that the Scottish monuments with foliage were all made under the influence of the Northumbrian or Anglian school of sculptors; that the foliage-designs can in every instance be regarded as vine-scrolls, or as derived from vine-scrolls; and that they originated somewhere in the eastern Mediterranean.

There are two distinct groups of carved crosses with vine-scrolls in Scotland. The southern group is confined to the region south of the Forth, with a single possible exception at St. Andrews, Fife. It consists of fragments from Abercorn, the seat of an Anglian bishopric in the 7th century (though the crosses are probably later), from Aberlady, Morham, Jedburgh; and of an important sub-group round Hoddom (Kentigern's earlier centre) where many fragments of Anglian character have been found, and are still preserved in a wine-cellar at the castle there, where I photographed them in 1936. With this whole southern group, whose masterpiece of course is at Ruthwell, I am not now directly concerned.

North of the Forth are several crosses, cross-slabs or fragments on which designs ultimately derived from the Northumbrian vine-scroll have been observed. The most remarkable instances occur at two adjacent places in the peninsula between Dornoch Firth and Nigg Bay, Ross-shire, namely, at Hilton of Cadboll and at Tarbat. Both examples are now safely preserved in the National Museum at Edinburgh. Round the margin of the Hilton slab (PLATE I) is a design

## ANTIQUITY

consisting of a vine-stem with branching spirals and grapes, in which are set fantastic birds (derived originally from peacocks, as their tails show), sometimes eating the grapes. On the central portion are carved some of the well-known Pictish symbols ; and the lower panel has a spirited hunting scene. The whole carving is admirably executed ; it is a work of real beauty, with its well-balanced designs, and is the work of a genuine artist. The Tarbat fragment is similar, but it is much worn. The general design seems to have been the same, and may have been made by the same sculptor. It is to be observed that the vine has become attenuated and the bunches of grapes are highly conventionalized.

The nearest parallel is to be found on a fragment from St. Peter's, York (PLATE II), now preserved in the Hospitium there. (The parallelism was observed by the present writer before he discovered that it had also been noticed by Romilly Allen, who noted that it was 'a Northumbrian variant of the classical vine-scroll, modified by Byzantine influence'). This fragment was described by the late Mr W. G. Collingwood as 'an example of the latest stage of good Anglian art', and he put it in his Period A<sub>3</sub>, which he regarded as pre-Danish (*Yorkshire Arch. Journal*, xx, 161). In his book (*Northumbrian Crosses*, 1927) he attributed it, in the index, to the early 10th century. The dates thus given to it differ considerably, but suggest that the York monument falls within the period 800-950. The resemblance between the York example and the two Scottish ones is so close that they may well be contemporary. This would mean that the Hilton slab cannot be earlier than the 9th century.

On the cross at Forres (which I have not seen) there appears to be some ornament, on one of the sides, reminiscent of foliage-scrolls. This is the monument usually described as Sueno's stone ; it has no Pictish symbols on it, and for this reason a late date is probable (Stuart, *Sculptured Stones*, I, plate 21). It is described by Romilly Allen (*op. cit.*, p. 151), who does not illustrate it, as 'foliage or beasts interlaced, much worn'.

There is a somewhat parallel design on the side of the Mugdrum slab (Stuart, I, plate 52) described by Romilly Allen (*ib. id.* p. 367) as 'scroll foliage with winged dragons in the scrolls'. It has no Pictish symbols.

The bunches of grapes, which began as proper bunches, degenerate into three round balls ; and the foliage-spirals become mere curving lines. The leaves, never very vine-like, tend to become narrow and to resemble those on 'Samian' pottery and Roman inscribed stones. It

## NOTES AND NEWS

is possible that these Roman relics may even have suggested them. There may have been some carved Roman stones still visible, at any rate in northern England, at the time when the crosses were made. The rosette, which is quite common on the crosses, especially in the vine-scrolls, was carved on the upper portion of some of the Roman stones, and may have been used also on buildings.

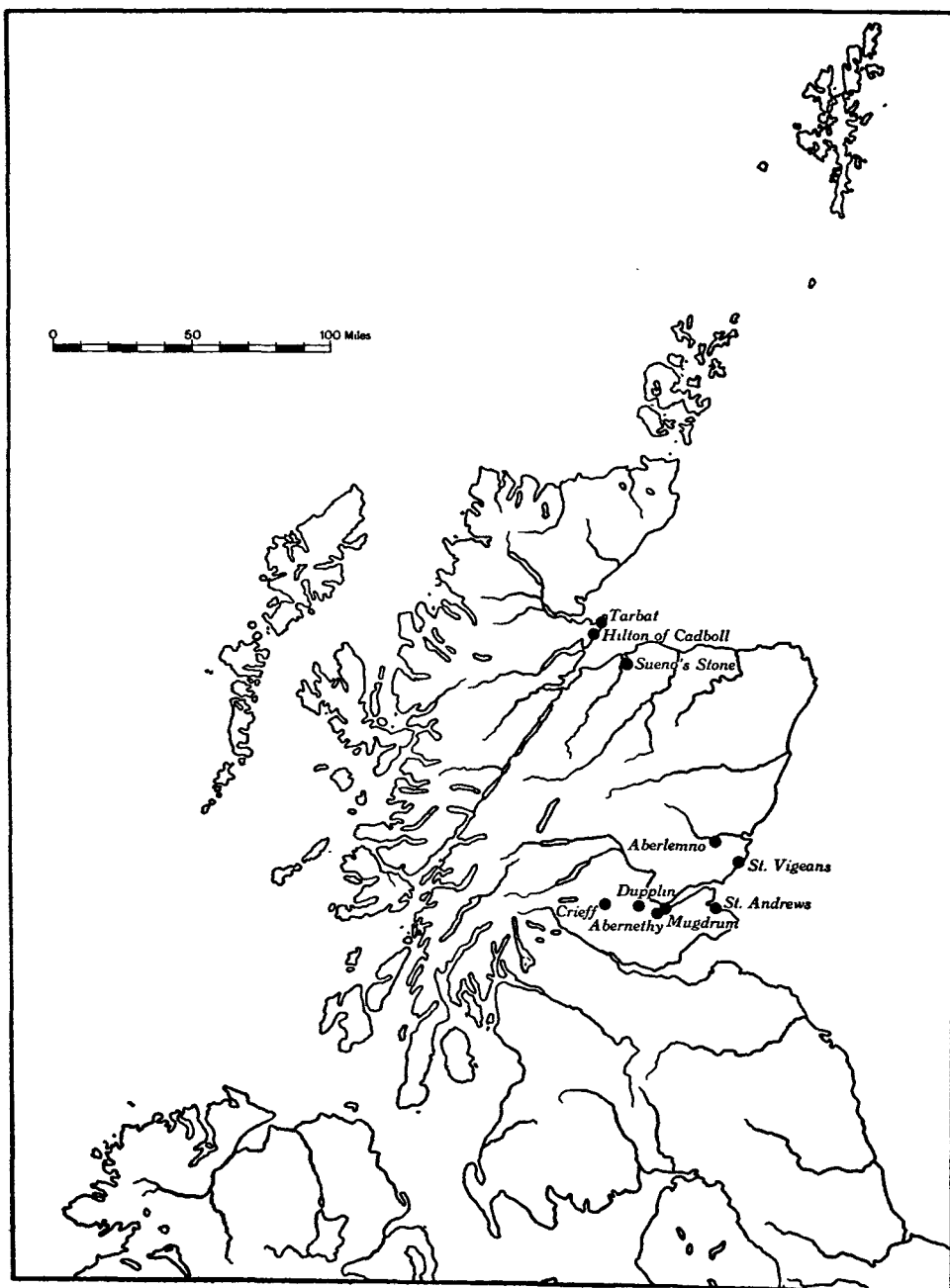
It is interesting to compare two vine-scrolls, one from the Anglian region of Aberlady (PLATE III) and the other the well-known Drosten stone from St. Vigeans (PLATE IV), near Arbroath, Angus. The Aberlady stone (now at Carlowrie House near Edinburgh) has bunches with six or seven grapes, and the tendrils end in two or three pointed leaves. The Drosten grapes are the conventional three and there is but a single leaf awkwardly attached. There is an inscription (which has never been examined by a palaeographer) reading DROSTEN IPE UORET ETT FORCUS. The names all occur in the Pictish king-lists (if UORET may be equated with WROID, which is doubtful). But there is no assurance that the Drosten here commemorated was a Pictish king. If he was, the only one who seems to be chronologically suitable is the third, Drust, son of Constantine, whose dates are given by Anderson (*Early Sources*, p. cxiii) as about 834-6. There was another Drust about 780 and yet another who reigned from 724-6. The Drosten stone has a cross on one face, covered with interlacing ornament, and on the other several Pictish symbols, together with the eagle and fish, a hooded bowman, a boar, deer and several other animals.

On the west side of the cross-slab opposite the post-office in Crieff, Perthshire, is a confused design with three-berried bunches. The combination of scroll-work with an angular design occurs on the side of a fragment from Dacre, Cumberland, dated by Collingwood 'perhaps not more than a hundred years after Bede' (p. 47), that is, early 9th century; but the execution of the design on the face is far superior to anything on the Crieff cross.

Scrolls without leafage occur on cross-slabs at Aberlemno, Angus (*Early Chr. Mons.* p. 211), Abernethy (*ib. id.* p. 312), and on the cross at Dupplin, Perthshire. These scrolls have a distant resemblance to that on an Anglian cross at Ilkley, Yorks, placed by Collingwood 'at the end of the Anglian period proper', probably during 'the years immediately before 867' (p. 50).

The evidence of date is almost purely stylistic and therefore to be accepted with great caution; but it is consistent in suggesting the ninth century as the approximate period of all these Scottish examples.





DISTRIBUTION-MAP OF THE VINE-SCROLL ON CROSSES AND CROSS-SLABS IN SCOTLAND,  
NORTH OF THE FORTH



VINE-SCROLL ON HILTON OF CADBOLL STONE (see p. 469)  
*ph.* National Museum, Edinburgh

PLATE II



FRAGMENT OF CROSS-SHAFT FROM ST. PLTER'S, YORK (see p. 470)  
*ph.* York Museum



FRAGMENT OF CROSS-SHAFT FROM ABERLADY, NOW AT CARLOWRIE HOUSE, NEAR EDINBURGH  
(see p. 471)

ph. O. G. S. Crawford

PLATE IV



CROSS-SHAFT FROM ST. VIGEANS, ANGUS (see p. 171)  
*ph.* National Museum, Edinburgh

## NOTES AND NEWS

History records only two dates that bear at all on the problem. The first is the request of Naitan, king of the Picts, to Ceolfrid, abbot of Wearmouth and Jarrow, for architects who could build in his kingdom a stone church after the fashion of the Romans, together with certain information that would enable him to confute the priests of the Columban church. This occurred about the year 710. (Naitan was king from 706 to 724 and again, after an interval, from 728 to 729, according to Anderson's dating). The architects were sent, together with a long and uninteresting epistle, which Bede quotes in full (Book 5, §21) and which he may have composed himself. No remains of their handiwork are known to have survived; but it is reasonable to infer that, just as the importation of architects by Benedict Biscop in the 7th century led ultimately to the foundation of the Anglian school of carving itself, so the Anglian architects may have performed a similar function for Pictland. But the stylistic resemblances of our vine-scrolls are all to monuments in the *latest* Anglian style, so that we cannot attribute any of them directly to the influence of Ceolfrid's architects.

The other pertinent date is the year 843, which is approximately that of the union of the kingdoms of the Picts and Scots under Kenneth Macalpin. It seems not unlikely that an event of this kind might produce just that environment in which such a stone-carving style, already perhaps potentially present, might develop. But attempts to equate political and cultural activities are notoriously dangerous.

For the present we must be content to accept the period 800-1000, long ago suggested by Anderson, as still the best for the crosses and cross-slabs of eastern Scotland.

Finally, attention must be drawn to the significant distribution of the vine-scrolls (map, p. 472). Nearly every example is from a place on or very near the coast, the only exception being Crieff. That is what one would expect. The coastal regions were those which were most easily reached from the south, and where Northumbrian influence would most readily be felt. The concentration round the mouth of the Tay is striking, and suggests a date when Scone, Abernethy, and Forteviot were of more importance than the other centres further north.

I wish to thank the authorities of the National Museum, Edinburgh, for permission to publish photographs of the Hilton of Cadboll stone; and my warmest thanks to Mr A. J. H. Edwards, of that Museum, for the trouble he has taken to secure good photographs; also to Dr Collinge of the York Museum for the photograph of the cross-fragment from St. Peter's, York.

O.G.S.C.

## ANTIQUITY

### PLACE-NAMES, SCOTLAND

The following abstract formed part of a paper on the Study of Place-names in Scotland read by Dr A. MACDONALD, of Edinburgh, at the Congress of the International Association for European Folk-Lore and Ethnology held in Edinburgh last July. Lack of space prevents printing the complete paper.

‘The first germ of Scottish place-name study, as far as I am aware, was the publication, in 1885, by that veteran of letters Sir Herbert Maxwell of Monreith, of *Studies in the Topography of Galloway*. This was followed by a series of articles on the place-names of Argyll, contributed to *The Scotsman* in 1887 by the late Professor MacKinnon, of the Chair of Celtic in the University of Edinburgh. Since then there have appeared numerous studies of particular districts—counties, parishes, glens—as well as more ambitious works covering the whole country. These studies include Professor W. J. Watson’s *Place-Names of Ross and Cromarty* (1904), E. C. Ellice’s *Place-Names in Glengarry and Glenquoich* (1898), A. R. Forbes’s *Place-Names of Skye* (1923), James Macdonald’s *Place-Names of West Aberdeenshire* (1898), H. C. Gillies’ *Place-Names of Argyll* (1906), W. J. N. Liddall’s *Place-Names of Fife and Kinross* (1896), and Sir Herbert Maxwell’s *Place-Names of Galloway* (1930). These works—not by any means a complete list—come under my heading of particular districts; and there have also been numerous articles, on parishes mainly, published in the *Proceedings* of the Gaelic Society of Inverness, the *Scottish Geographical Magazine*, and the *Celtic Review*. Of general studies we have such works as Sir Herbert Maxwell’s *Scottish Land-Names* (1894), the Rev. J. B. Johnston’s *Place-Names of Scotland* (1st edn., 1892, 2nd edn., 1903, 3rd edn., 1934), Erskine Beveridge’s *The “Abers” and “Invers” of Scotland* (1923) and Professor W. J. Watson’s *The History of the Celtic Place-Names of Scotland* (1926).

‘The main virtue which local works generally have is an intimate knowledge of the district under discussion, its place- and field-names, its legends, and its people. A proper use of such knowledge may atone for many faults; for instance, I know a certain farm to the east of which is a field called by the ploughman by the name of “Castle Field”. There is no trace of any building there, nothing but a small mound and the vestigial remains of a ditch; yet that same ploughman could tell me that a bronze ornament had been turned up there some twenty years before; and the local gamekeeper added his item of information

## NOTES AND NEWS

by stating that the ruin labelled "Castle" on the Ordnance Survey maps, some quarter of a mile to the west, is nothing more than the ruins of an old farm building, which he remembered perfectly when still complete. In such a way may the local worker, however unsuited he may otherwise be for elucidating the meanings, bring his specialized knowledge to bear upon things of local interest, and may even succeed in confounding the expert cartographer or expert philologist.

'What must be done towards the better elucidation of the place-names of Scotland? Obviously the work of the local observer, who knows his district by heart, and can describe it, its people, its legends, even its geology, must be added to that of the expert in archaeology, in philology, and in palaeography. There is only one way in which this can be done, and that is by the establishment of a Scottish Place-Name Society. Is this possible? There is a Society in England which has published a number of volumes, each dealing with a county or section of a county. It has, of course, the help of a large number of voluntary workers, who send their material to a central clearing-station. It has some 800 subscribers, of which about one-quarter are Institutions, who contribute a minimum of 15s annually; it is not helped at all by a State grant. Can Scotland not do as well? Surely there are a thousand people with Scottish interests, who would be willing to support such a venture financially? I have no doubt that financial aid would be forthcoming from the Continent of Europe and the New World; but to my mind the main thing is that the people of Scotland should be interested, that a central body should be set up and the possibilities of my suggestion thoroughly investigated. Should it prove feasible—as I think—steps could then be taken to enlist the services of these indispensable local helpers, who would be willing to report on local names and traditions. Nothing that might prove of the slightest value should be neglected; field-names may prove extremely useful, for, as I know by experience, the names of old estates and farms may disappear, as estates and farms, but they almost invariably remain in the local memory as the names of fields.

'I do not claim this suggestion to be an original idea; it has been mooted previously, as for instance in 1934 a reviewer in *The Times Literary Supplement* concluded his remarks on a book on Scottish place-names thus: "The truth is that a satisfactory general book on Scots place-names is impossible till the whole of Scotland has been covered in a series of scholarly county volumes". Any attempt to do this would, I know, have the benefit of the advice of the Director of



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the English Survey, Sir Allen Mawer, who would be glad to put his knowledge and experience at the disposal of a Scottish body ; and I have good reason for believing that the Ordnance Survey would be very sympathetically disposed. The method adopted by the English body, which is economical and simple, might with advantage be followed ; and indeed one of the three Lothians has already been covered in a thesis after the English model, and the other two are at present being studied by Edinburgh graduates. Nor is the material lacking. The Scottish History Society publications, as well as the publications of older societies like the Bannatyne Club, give us printed material ; the contents of H.M. General Register House and the National Library of Scotland are more and more at our disposal ; we have the invaluable aid of the work of Sir William Craigie and Dr Grant, which we may supplement with Joseph Wright's *English Dialect Dictionary* ; and we have for the use of Scottish students an increasing number of maps and plans, or copies of them, which are available as the result of a Committee founded a year ago for the preservation of old estate plans. We cannot tell what a detailed study of the place- and field-names of Scotland may bring to us. Apart from the fact that such study is in itself a liberal education, requiring considerable knowledge of all sides of Scotland and of Scottish life, it is the case that the work of the ethnologist, the historian, and the archaeologist must go unfinished without the help of the student of place-names. With that help we may throw light upon the sites of ancient battles, trace the movements of ancient peoples—we may even discover positively the identity of the Picts !'

### MESOLITHIC PIT-DWELLINGS (PLATES V-VI)

What must probably rank as the earliest group of artificial dwellings yet revealed by the spade in Britain has recently been investigated on the Corporation sewage farm at Farnham, Surrey. The site, which overhangs a permanent spring (PLATE V) of great antiquity, has for some years been a resort of collectors of flint implements, but it stands to the credit of Mr W. F. Rankine, of Badshot Lea, to have recognized that many of the flints derived from a group of loam-filled pits scooped out of the gravel. The existence of these pits was first suspected in 1929-30 through observation of surface colour-differences after ploughing. Trial sections cut in 1930 and in 1935<sup>1</sup> definitely proved that microliths and associated flint-work were to be found in the pits in fresh condition.

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<sup>1</sup> W. F. Rankine, 'A Mesolithic Site at Farnham'. *Surrey Archaeological Collections*, 1936, XLIV, p. 24 ff.

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During July and part of September of the present year excavations were carried out by the present writer with the co-operation of Mr Rankine and other friends, the financial support of the Trustees of the Percy Sladen Memorial Fund and the Surrey Archaeological Society, and the help and encouragement of the Corporation of Farnham. Only a small proportion of the site was explored, but this was stripped to the surface of the undisturbed gravel. Traces of a Belgic ditch and of a curved enclosure ditch of Roman-British age were the first features to be revealed, but in following the course of the latter it was found to cut into the filling of a 'pit-dwelling' or hut-foundation which proved to be of much greater antiquity. Subsequently two more of the early dwellings were revealed in plan, and the three were cleared of their contents.

The primary material recovered from the pits consisted of a homogeneous flint industry of Tardenoisian affinities, stone pebbles with battered extremities, vast quantities of 'crackled' flints, charcoal and yellow ochre. All of the worked flints from the pits have been retained and it is hoped to learn a great deal from a study of the technique employed to produce microliths, often of minute size, from the large nodules of flints utilized as raw material. The flint industry has not yet been studied in detail, but it compares with that collected from the surface in the Horsham district and elsewhere in Surrey and Sussex, mostly on the Lower Greensand. An idea of the richness of the industry from the pits can be conveyed by the statement that from pit II between 260-70 microliths and micro-burins were recovered, as well as angle-burins and scrapers and masses of cores and flakes, not to speak of over 1500 crackled flints of a certain size. The superiority of such closed finds from pit-dwellings over material collected (and selected !) from the surface does not require emphasizing.

The Farnham pits, one of which with well-defined entrance and post-hole and two distinct compartments is illustrated by PLATE VI, can be paralleled by previous finds at Hassocks and Selmeaton in Sussex as well as elsewhere in England and on the Continent, but as a general rule (*e.g.* on most of the Lower Greensand sites and on the Pennines) the Tardenoisian people seem to have been content with rough wind-breaks and possibly tents. Such impermanent structures would have been a natural result of their unsettled way of life. Yet when the local inducement was sufficient—and the spring at Farnham still provides excellent drinking-water despite the use to which the surrounding land is put—it is evident that they were not incapable of digging themselves

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in to some extent out of the wind. This need hardly occasion surprise when the much more elaborate houses found on the open stations of the palaeolithic mammoth hunters of south Russia and Siberia (Malta, Kostienki and Gargarino) are remembered.<sup>2</sup> The number of pits at Farnham has not been exactly determined, but it is in any case not to be supposed that they were all inhabited at the same time. Probably the camping around the spring was a seasonal affair, indulged in by small groups of food-gatherers who normally sought their food wandering over the Lower Greensand. At least sections through the pit-fillings have shown clear evidence that some of the pits were used on more than one occasion, hearths being stratified at different levels.

It is hoped to publish a full account of the discovery in the *Proceedings of the Prehistoric Society* and to present the contents of two of the pits to the British Museum.

J. G. D. CLARK.

### BONE-CAVES IN JURA (PLATES VII, VIII)

A correspondent sends us the accompanying photographs of caves on the island of Jura (PLATES VII, VIII), off the west coast of Scotland (Argyll 177). They are situated on the north shore of Loch Tarbert, between Gleann Rìgh Mòr on the northwest and Aird Reamhar on the south (Lat. 55° 58' N ; Long. 5° 58' W). As can be seen, in the mouth of the cave are numbers of sea shells and split bones, both of birds and mammals. Close by are the remains of the raised beaches that are found all down the west coast. There seems little doubt that these caves were inhabited by man. Whether their occupation goes back to the period of the raised beaches could be determined only by a careful survey of the whole coast and by excavation. Our correspondent suggests that the site is suitable for an excavation camp, for it is remote from all roads and from human habitation, and could only be explored in this way. We would add that the excavation of such a site is not a job to be lightly undertaken, nor by anyone without considerable previous experience.

The island of Jura has been isolated from the rest of Scotland all through history. It may have been the *Hinba*, *Hinbina insula*, of Adamnan, visited by Saint Columba. In 1772 the people still lived in very primitive conical huts, like those described by the old writers (Pennant's *Second Tour in Scotland*, Pinkerton's *Voyages*, vol. III, 1809, plate opp. p. 278).

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<sup>2</sup> V. G. Childe. *Procs. Prehist. Soc.*, 1935, p. 152.

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### A BRIDGE IN THRACE (PLATE IX)

The modern Greek province of Eastern Macedonia corresponds with an area which in antiquity was included in Thrace. South of the small modern town of Drama, which is identified by some with the ancient Drabesos, is a wide undrained marshy area derived from the various streams of the river Angista, which is undoubtedly the ancient Angites. Roughly southwest of Drama rises the isolated mass of Mount Pangaeum, the great gold-mining centre of the Greek world. North and south of this mountain two depressions give access for a route from east to west. Both routes are used today and converge on the Strymon near the site of the ancient Amphipolis. The river Angista, which rises in the mountains north of Drama, ultimately flows into the lake made by the Strymon below the larger lake Tahino.

The marshy region of the Angista is some fifteen kilometres square. A modern track leaves Drama and passes through the villages of Koudounia and Mavrolefki, skirting Banitsa and so reaching Kormista, which is the principal village on the north which gives access to the mountain, by way of the monastery of Eikosiphoenisses, which stands some 1000 feet up.

At Banitsa begins the curious five-kilometre-long Iron Gates of the Angista, a deep ravine with rapids. Through this ravine run the accumulated waters of the marsh. The marsh today is known as Gournokoumaso.

A main route in ancient times could run across the Drama plain from the east, through Banitsa and along the edge of the Iron Gates, getting round Pangaeum by the north along easy land. The Via Egnatia may possibly have run this way. But it may equally have run south of Pangaeum.

Exactly three kilometres east of Banitsa village—near a point where the main stream of the Angista turns west to enter the Iron Gates near Banitsa—is a large two-span stone bridge (PLATE IX), alongside the Mavrolefki-Kormista track. It is aligned north and south and today stands in marsh rather than athwart any large part of the stream. The Angista stream is only a half a kilometre north of it, running east and west.

The bridge was thus built to deal with conditions which were different from those evident today.

Its main feature is the fine central cutwater. Remains of a coping exist over the southern arch.

The bridge-builders who have lived in this region, and whose architecture was capable of a bridge of this character, were the Romans,

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Byzantines, Venetians and Genoese, and possibly Turks. The character of the bridge seems to rule out the ancient Greeks. Roman Philippi is near at hand. Venetian work is seen at Kavalla at the south end of the plain of Philippi. Turkish work is everywhere round in the countryside. A Byzantine castle exists at Eleutherae, south of Pangaeum on the coast. Genoese castles are found not far away at Enos.

The bridge does not seem to me to be Turkish and is certainly not modern Greek. Modern Greek work is ruled out by the fact that this district was a Turkish province up to 1913 and local Greeks were a depressed *rayah* class. Moreover the bridge was designed to meet conditions which must have existed a long time ago.

The masonry does not resemble Italian or Byzantine medieval work of the type seen in these parts. It seems therefore that the bridge may be Roman. But to what system of roads it belongs I cannot say. Its solid and well-designed structure suggests that it carried a road of importance. The fact that the bridge is aligned north and south and not east and west as would be required for a road-bridge on the Via Egnatia may be due merely to a deviation made necessary by the wanderings of the Angista streams. Three Roman roads converged from the west on Philippi. The bridge may belong to any one of these.

STANLEY CASSON.

### ROMAN BAS-RELIEF, AVIGNON (PLATES X, XI)

In ANTIQUITY for December 1936 (p. 468), Dr D. P. DOBSON mentions the Roman relief, depicting a boat laden with wine-barrels, which is now to be seen in the new lapidary section of the Musée Calvet at Avignon. This monument has never been adequately reproduced, and it has in consequence received less attention than perhaps it deserves. It was found some thirty years ago near Cabrières d'Aigues (Canton Pertuis, Vaucluse) together with the three fragmentary reliefs, of similar material and workmanship, which are now incongruously grouped against its reverse face (Deydier, *Bull. Arch.*, 1912, 87, pl. XXII; Espérandieu, *Recueil général des bas-reliefs de la Gaule romaine*, LX, 100, nos. 6799, 6800). All are carved in a hard, brown, rather coarse-grained limestone, derived probably from the local quarries of Luberon. In its present condition the block here illustrated (PLATES X, XI) measures 1 m.  $50 \times 0.58 \times 0.40$ , but a considerable portion from the right-hand end is missing. An offset of about an inch is clearly marked on the upper face, and together with the other fragments, which depict respectively a stack of storage-jars, a horse drawing some object now

PLATE V



MESOLITHIC PIT-DWELLINGS, FARNHAM, SURREY (see p. 476)  
The permanent spring—the focus of the settlement

# PLATE VI



MEGALITHIC PIT-DWELLINGS, FARNHAM, SURREY (see p. 177)  
 Pit 2 in the foreground, with a section of mibling left in position, the line of the Romano-British ditch being marked by  
 a white peg on the left. In the left background pit 1 can be seen, the hearth being indicated by a white peg.

PLATE VII



CAVE ON WEST COAST OF JURA, ARGYLL (see p. 178)

*ph. G. Marples*

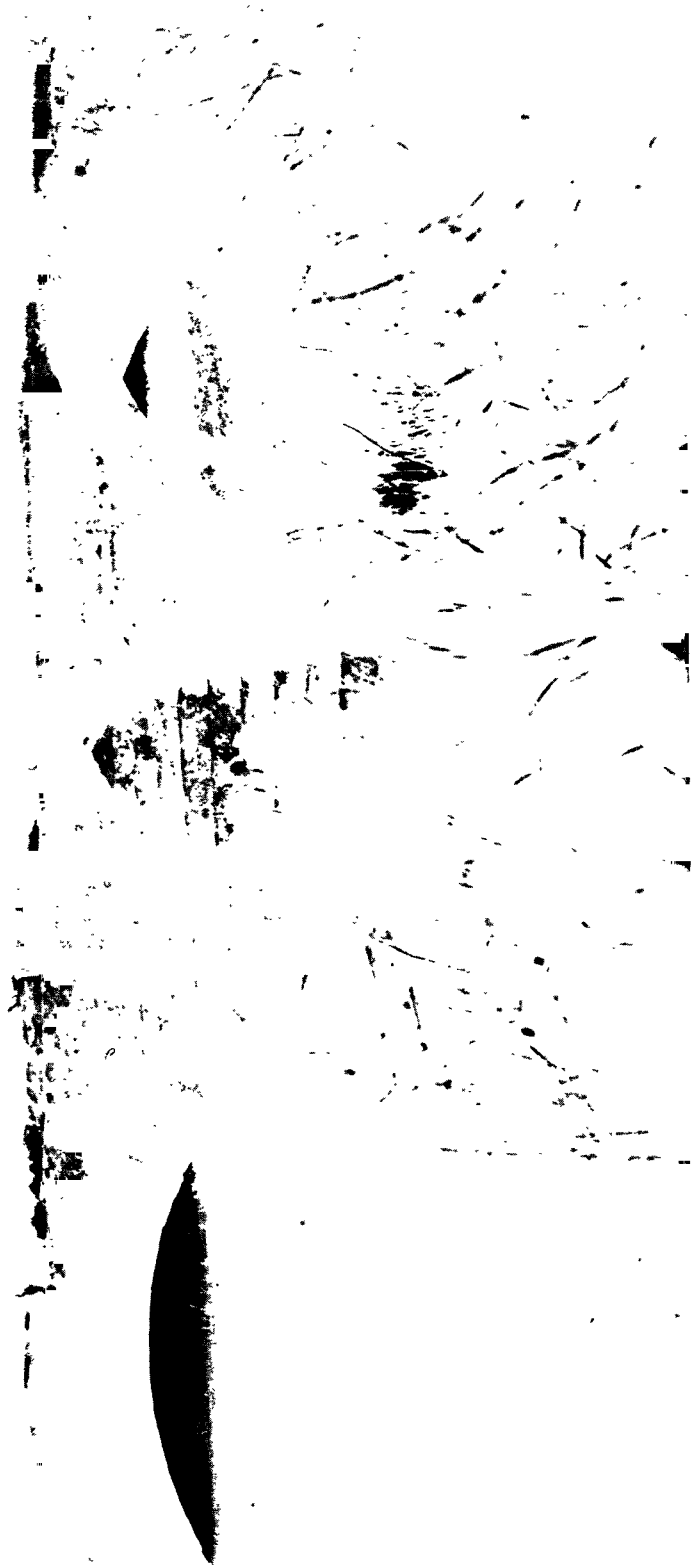


PLATE VIII

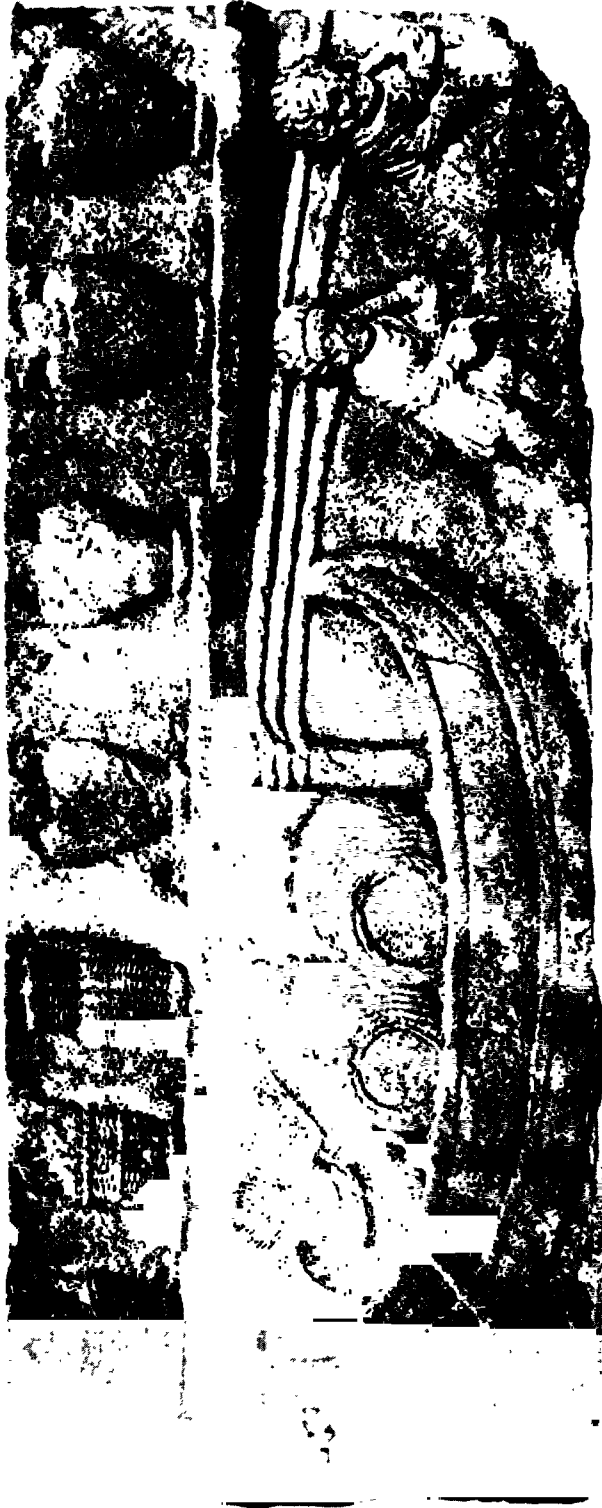


CLOSE-UP OF CAVE IN JURA SHOWING SHELLS AND BONES (see p. 178)

*pl. G. Marples*



A BRIDGE IN THRACE (see p. 179)

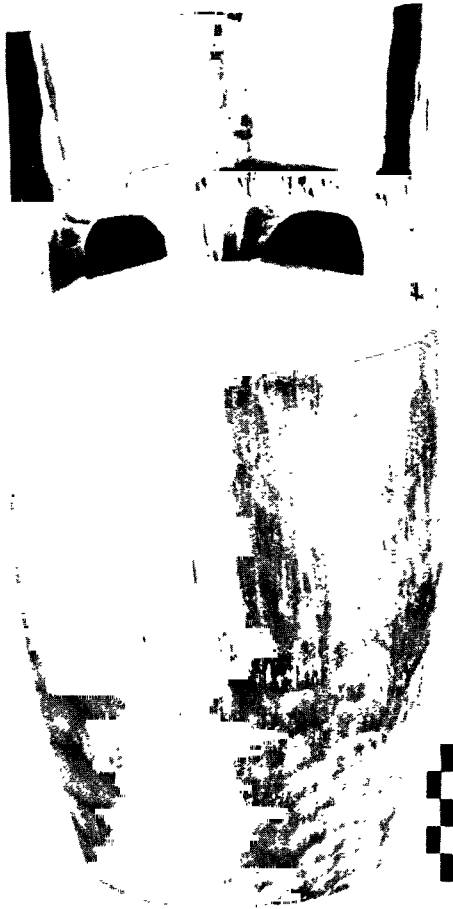


ROMAN BAS-RELIEF, MUSÉE CALVET, AVIGNON (see p. 480)  
*pl. J. B. Ward Perkins, reproduced by courtesy of Musée Calvet*



ROMAN BAS-RELIEF, MUSÉE CALVET, AVIGNON — enlarged detail (see p. 180)

PLATE XII



A TURKISH WATER-BOTTLE (see p. 182)

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lost, probably a cart, and a man, who is perhaps leading the horse of the second fragment—it probably formed the decoration of a tomb upon which was portrayed the occupation of the dead man during life. Such tombs are more common in northeast France, but are not unknown in Provence. In form it would be an upstanding, box-like structure, a humble variant of the mausoleum of the Julii at St. Rémy or of the towers which once stood at Aix-en-Provence.

The form of the boat calls for no special comment. With its shallow draught it was well adapted for river-work and the type was widely employed in Gaul. The boat on the Igel Column (Drexel, *Mitt. Arch. Inst. Rom.*, 1920, 91) affords an obvious parallel. The river-transport of the Rhône valley was organized upon a scale unsurpassed elsewhere in the Roman world. Besides the great companies which operated upon the Rhône, the Saône and in part upon the Loire, there were smaller groups upon the lesser rivers. To one of these, the *nautae Druentici*, who brought the produce of the Durance valley to the quays at Arles for shipment abroad or for transport up-river to Lyon and beyond, the dead man may well have belonged. By far the most important item of his freight would have been, as here, wine. Pliny (*Hist. Nat.* xiv, 68) does not speak highly of the general quality of the wine produced in Narbonensis, although that of Baeterræ (Béziers) enjoyed a high reputation in Gaul, and by the middle of the first century A.D. it was finding its way to Rome (CIL, xv, 4542-3). There can however be little doubt that wine formed the largest single item of export and that it constituted the bulk of the *aunona*, the taxation in kind, paid by the province. The lower Durance is also well adapted for the production of oil, and it may be suggested that the wicker jars here depicted are for the storage of olives.

Stylistically the relief is of great interest. The figures have a good deal in common with certain Romanesque work, *e.g.* the reliefs in the cloister at Gerona (Deschamps, *La sculpture française à l'époque romane*, pl. 89). The similarity is of course purely accidental, but the possibility of such comparison is significant of the quality of a good deal of the lesser sculpture of Roman Provence. Interest has in the past inevitably been centred upon the greater monuments such as the arch at Orange and the monuments at St. Rémy. Yet there too more attention might with profit have been paid to the sculptural past of the region. The local version of the classical Greek idiom, while dependent for expression upon the economic conditions established under Roman rule, was parallel to, rather than derivative from, the art evolved in

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Augustan Rome. In a few districts, notably at Vaison, the metropolitan art gained a complete ascendancy ; a visit to this remarkable site can be most depressing. Elsewhere the provincial element was strong ; and so far from being a mere barbarization of Roman elements, it had a decided positive content of its own. In particular is this true of the lower Rhône valley, where objects such as the ' Tarasque of Noves ' (Espérandieu, *op. cit.*, I, 121) attest the degree of skill and originality that could be attained by the pre-Roman craftsman.

The dating of this provincial sculpture is not easy. The present example is clearly related to two other reliefs at Avignon, both of which came from the Château de Maraуди near Vaison and depict respectively the labours of Hercules and a sacrificial scene (Espérandieu, *op. cit.*, I, 274 and 290). All three may presumably be dated to the first, or early second, century A.D.

Whatever its qualities, it is clear that the time is past when work of this type could simply be dismissed, as Drexel dismisses this relief, as crude and rustic. There is a tremendous amount of bad provincial art, but there is also much that is good ; and it is hardly surprising that it is in precisely those works which display the strongest influence of the native idiom that that art is to be seen at its best and most interesting.

J. B. WARD PERKINS.

### A TURKISH WATER BOTTLE (PLATE XII)

The conditions of the Anatolian highlands have tended to preserve to the present years many forms of early craftsmanship, of which the wooden water bottle (scale : 5 cms.) illustrated (PLATE XII) is an example.

As shown in the photo the bottle is equipped with three ' necks ', the main one in the centre and one at either side, all connecting with the interior of the vessel. An alternative shape has only one subsidiary neck.

The centre of manufacture appears to be two villages, Evciler and Kozluca, near to Sandikli in the Afyan Karahissar Vilayat. The extent of circulation of these utensils has not been determined, but it is probably confined to the Sandikli Karmakamati.

The material used is pinewood, the whole body being carved from the one block. The inset base is the only added portion. The tools used are (a) an adze for roughing out the exterior shape, (b) a large type of awl with a wooden cross-handle for hollowing out the interior. Numerous holes are made and the loose intervening wood is cut out

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with (c) a chisel and mallet. The holes in the necks are burnt out with a hot iron.

I am indebted to Mr R. H. Macartney, A.R.I.B.A., for the technical information. J. R. STEWART.

### HUMAN REMAINS, SWANSCOMBE, KENT

The following statement has been prepared by the Swanscombe Research Committee :—

In June 1935, Mr A. T. Marston was responsible for the discovery of a human occipital bone at a depth of 24 feet (7.3 metres) from the surface in the stratified Middle Gravels of the 100 ft. terrace of the Thames at Swanscombe, Kent. The following March he discovered a left parietal bone which articulated perfectly with the occipital. Both bones lay in the same seam of gravel, though at a distance of 8 yards (7 metres) from one another. Associated animal bones (*Elephas antiquus*, etc.) indicated interglacial conditions, and Middle Acheulian implements, in an unabraded condition, occurred at the same horizon.

Preliminary accounts of the discovery appeared in *Nature* (19 October 1935, and 1 August 1936), and on 12 January 1937, Mr Marston delivered a lecture on his excavations at the Royal Anthropological Institute (*Man*, 1937, 35). His full report will be published in the *Journal* of the Institute.

Under the aegis of the Institute a Committee has been formed to investigate the evidence which Mr Marston has collected, and to co-operate with him in the further exploration of the site. This Committee consists of Mr M. A. C. Hinton, F.R.S., Keeper of Zoology, British Museum (*Chairman*); Mr K. P. Oakley, Department of Geology, British Museum (*Secretary*); Professor P. G. H. Boswell, F.R.S., Department of Geology, Imperial College of Science, London; Professor W. E. Le Gros Clark, F.R.S., Department of Anatomy, University of Oxford; Dr Frank Corner, F.G.S.; Mr H. G. Dines, Geological Survey of Great Britain; Mr C. F. C. Hawkes, Department of British Antiquities, British Museum; Professor W. B. R. King, Department of Geology, University College, London; Mr A. T. Marston, L.D.S.; Dr G. M. Morant, Galton Laboratory, University College, London; and Mr S. Hazzledine Warren, F.G.S. The Committee is receiving financial support from the Royal Society. It will prepare a joint report on its findings, which will be published in due course.



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### PETROLOGICAL ANALYSIS

We gladly print the following communication on the importance of petrological analysis applied to Stone Implements, which is receiving the attention of a sub-committee appointed by the South-Western Group of Museums.

The time has now passed in archaeology when museum specimens were considered as possessing merely an intrinsic value in themselves unrelated to their potential use as scientific evidence towards the furthering of research. Moreover, through the adoption of modern methods of research, archaeology has tended increasingly during the past fifteen years to take its place among the recognized sciences.

Among such methods must be considered the identification of the rocks of which certain implements are formed, by means of petrological analysis. Any petrologist will agree that, as a rule, precise identification by microscopic examination of rock specimens is uncertain and dangerous, while, in the case of objects, *e.g.* stone axes, adzes, or mace-heads, which have been ground and polished, accurate identification is impossible short of taking thin sections. Microscopic examination is particularly desirable where a question of comparison of rocks is concerned. A case in point may be taken from three axes in a provincial museum, recently examined, where the colour and indeed the apparent texture of all three, differed considerably, but on microscopic slides being taken from each specimen and examined it was proved that all three were composed of the same rock.

It was by means of microscopic examination that Dr H. H. Thomas was able to show that the provenance of the 'foreign stones' at Stonehenge was undoubtedly the Presely region of South Wales, where a unique dyke of a certain type of ophitic dolerite exists. At a later date the taking of thin sections from two axes found in co. Antrim showed these to have been made from this ophitic dolerite, thus identifying their source of manufacture. During the excavations of the neolithic causewayed camp at Windmill Hill, near Avebury, Wilts, between 1925 and 1929, all specimens of stone geologically foreign to the locality discovered were similarly dealt with and microscopic slides made, with the result that it was discovered that practically all such specimens probably came from North Wales, while certain of them, which were made of the augite granophyre only to be found at Graig Lwyd, Carnarvonshire, certainly did so. Fresh light was thus thrown on

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cultural connexions between North Wales and North Wiltshire. In 1934 and 1935 implements of this rock were discovered during the excavations of the megalithic avenue running from Overton Hill to the circles of Avebury. These were likewise identified beyond doubt by microscopic analysis.

It must be realized that the axe factory of Graig Lwyd was probably only one of many such, exporting wares beyond the confines of their immediate vicinity, particularly to regions, such as that of the chalk, where igneous or metamorphic rocks suitable for the manufacture of the implements required are absent. It is by means of the identification of the original provenance of stone implements and comparison with the sites where each has been found that it is hoped to throw considerable further light on such important questions as trade routes and consequent diffusion of cultures, through proved connexions between specified parts of the country at certain periods.

In order to further this branch of research a sub-committee was formed by the South-Western Group of Museums in 1936. The functions of this Committee are, shortly, to collate work already carried out by other investigators, to take thin sections from suitable specimens, to compare the results of the petrological analyses, to compile records by means of fully documented and illustrated cards, to draw out distribution maps, and from time to time to publish interim reports of progress. Much work has already been carried out, and fresh information acquired, as well as confirmation of that already obtained. At the same time it must be stressed that the Committee are wholly dependent upon the cooperation of museum curators and private collectors for material for their researches, which it is desired, in order that they may be representative, should cover as wide an area as possible. An appeal is therefore made to those willing to assist in the work to communicate with the Hon. Secretary of the Committee (Stuart Piggott, F.S.A., Avebury, near Marlborough, Wilts). Specimens loaned, which should be accompanied by particulars of the site of their discovery, will be returned immediately microscopic slides have been made, and copies of petrological reports will in each case be forwarded later. It should be emphasized that the operation of obtaining a thin section does not, when skilfully carried out, damage a specimen as such. Any specimens submitted to the Committee will, if desired, before return be treated in such a way that practically no indication of the process will be visible.

ALEXANDER KEILLER.

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### INSTITUTE OF ARCHAEOLOGY, LONDON

The Institute of Archaeology was opened in April 1937, as a centre for research and training in branches of archaeology for which inadequate provision exists elsewhere within the University of London, and its first prospectus (session 1937-38) gives promise of much activity. The programme for the first term has included lectures on *Recent Archaeological Field-Work in Great Britain*, given by authorized members of the staffs of the expeditions concerned. Another course of six dealt with *Archaeological Draughtsmanship* and four public lectures were given on *Geochronology*. Important courses begin on 18 January on *The Principles and Technique of Field Archaeology* (16 lectures) and *Geochronological Methods and Results* (4 lectures) on 26 January. During the third term four public lectures on *Near Eastern Archaeology* will be given on Wednesdays, beginning 4 May.

Practical instruction in the repair and preservation of archaeological material can be obtained at the Institute, where there is a workshop for this purpose, and a fully equipped photographic studio enables private tuition in this very necessary aid to excavation work to be obtained.

The Institute is also prepared to assist suitably qualified students to obtain experience of field-work in a voluntary capacity in Great Britain.

Particulars of these and other facilities for the study of Archaeology can be obtained from THE INSTITUTE OF ARCHAEOLOGY, St. John's Lodge, Regent's Park, London, N.W. 1.

### EARLY MAPS (PLATES XIII-XIV)

The earliest separate printed map of Great Britain has been held to be that of Pietro Coppo, whose maps, printed from woodblocks, were discovered by Professor Almagia at Pirano in Istria, and were described by him in *Geographical Journal* May 1927, LXIX, 441. But the maps illustrated in this number, may be as old as, if not older than, those of Pietro Coppo, to whose work Professor Almagia assigned the probable date of c. 1525. These illustrations are taken from Ashmole 1352 in the Bodleian Library, Oxford, and thanks are due to the Keeper of Western MSS. for permission to reproduce the maps (PLATES XIII-XIV).

Some description of the volume in which the maps occur may be useful in assigning date and purpose to the work. Ashmole 1352 is a small duodecimo volume, bound in boards covered with old white leather, and containing twelve leaves of parchment. But for rubrick

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numbers and names, and some few names which were added with a pen in black ink, all the work is printed from blocks, and it is all obviously French. In addition to the maps, there are nine circular tables shaped like a mariner's compass, a calendar of saints' days with emblems, and a table of movable feasts for 1451-78. This suggests a very early date for the whole volume, but the general character of the work points to the early 16th century rather than the latter half of the 15th. Such tables of feasts were sometimes reproduced after their period of immediate usefulness was over, and the early 16th century is a safer assumption of date. There are four maps: one of the coast of the Bay of Biscay, one of the northern coast of France, one of England (with part of Scotland), and one of Ireland, and all are based on the model of the portolan chart, as in the manner of printing the names round the coast, and in the conventional design of the coast-line. But it is very doubtful if these maps were ever put to any practical use. In the first place, though the printing is large, and usually clear, the maps are relatively much too small. (The measurement of each folio is approximately only 10.6 cm.  $\times$  7.5 cm.). The compass is drawn in all four maps, but is in each case pointing in the wrong direction.

However, though the work is crude, there are many points of interest, for the names are given in more modern form than is usual in derivatives of portolan charts of the early 16th century, and there are several problems for the student of place-names. Some of the names have not so far been identified, and suggestions are invited as to the identity of the following in particular:—S. Richart, on the south coast of England, between Portsmouth and Beachy Head; Pilfout, between Kirkcudbright and Liverpool; Quilique, between Orford and Great Yarmouth; Queff, between Hull and Newcastle; and Nerg (or Nerr) between Newcastle and Berwick. There are other obvious gaps yet to be filled, but S. Richart, Queff and Nerg, are particularly puzzling. There are two early 16th century MS. maps in British Museum Add. MS. 22721, one of which bears a very close resemblance to Ashmole 1352. For the most part the names given are the same, but the B.M. map gives greater detail by placing S. Richart between Portsmouth and Arundel, and Queff between Hull and Scarborough. The other map gives 'Ners' between Newcastle and Berwick.

The following Lists of Places named on the maps, with their modern equivalents, should be compared with the reproductions on PLATES XIII and XIV. The places marked with an asterisk are written in red ink on the originals.

# ANTIQUITY

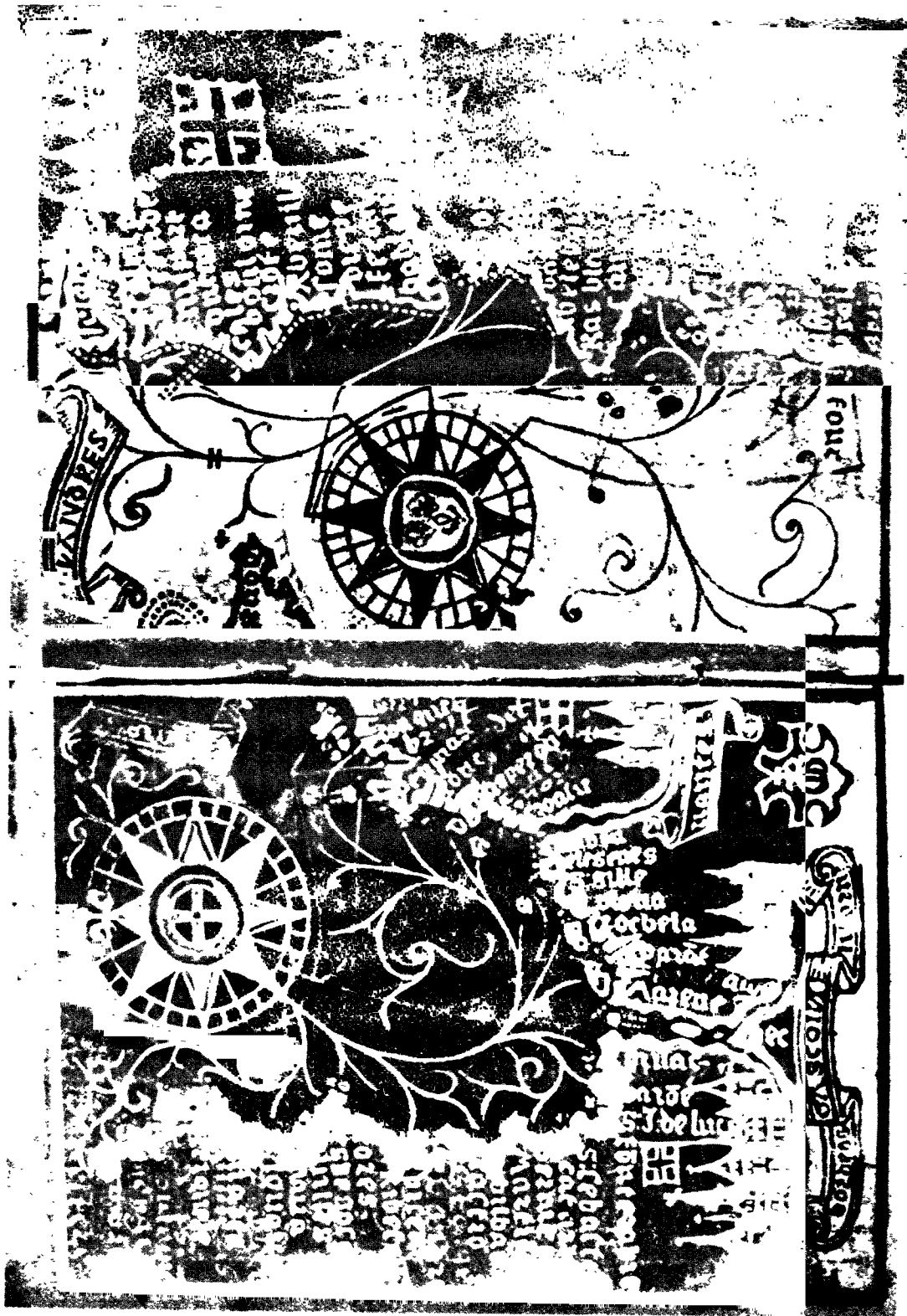
## FOLIO 1 VERSO, THE BAY OF BISCAY (PLATE XIII, left)

ABIRI	* ?
CONQUET (Le Conquet)	S. SEBASTIE (San Sebastian)
*BREST (Brest)	CATARIA (Guetaria)
PENMARC (Penmarch)	BERMEO (Bermeo)
*BENEDET (Anse de Bénodet)	MARTICO (C. Machichaco)
CONC (Concarneau)	BILBAO (Bilbao)
*—ET	CASTRO (Castro Urdiales)
QUEPERON (Quiberon)	*S. TONGE (Santoña)
*CRACH	*S. ANDRE (Santander)
*MORBI . . .	S. VICENT (S. Vincente d. l. Barquera)
CROASIC (Le Croisic)	RIBESEIL (Rivadesella)
—BON	TORES (C. de Torres)
BELESEUES	PESDEGOSŌ (C. delas penas de Guzan)
S. GILLE (S. Gilles)	AVILLES (Aviles)
OLONA (Olonne)	NAVA (Navia)
ROCHELA (La Rochelle)	LOUARCA (Luarca—misplaced ?)
CHARĀT (Charente)	* ?
*BROUAIGE (Brouage)	S. MARTA (Ria de Sta. Marta)
MARENE (Marennes)	* ?
BEC	ORTIGUERE (Ortiguéira)
SOULAC (Soulac)	* ?
*ARCASON (Arcachon)	*COULOINE (Corunna)
BAIŌE (Bayonne)	*MONGI (Mugia)
S. J. DE LUC. (S. Jean de Luz)	*MORES ?
FŌNTERABIE (Fuenterrabia)	*FINESTERE (Finisterre)

## FOLIO 2 RECTO, FLANDERS, ETC. (PLATE XIII, right)

*SELANT (Province of Zeeland, Holland)	CHELEBOURC (Cherbourg)
ESALNSA	RAS BLANCHAR (Raz Blanchart, between Alderney and Cap de la Hague)
OSTENDER (Ostende)	CANCALLE (Cancalle)
NUPORT (Nieuport)	S. MALLO (S. Mâlo)
DUCARCA (Dunkirk)	DINAN (Dinan)
CALES (Calais)	S. BRIEC (S. Briec)
BOULOINE (Boulogne)	PONTREO (Pontrieux)
CROTE (Le Crotoy)	*LAN[ ]RIGES
ABEVILE (Abbéville)	*PORT BLANC (Port Blanc, near Penvénan ?)
SOME (Somme)	LĀNON (Lannion)
DIEPE (Dieppe)	MORLES (Morlaix)
FECANT (Fécamp)	*S. POLL (S. Pol de Léon)
HABLANE	GORE
ROVĀ (Rouen)	*ABRA[ ]
HONFLEU (Honfleur)	P. SOLL (Porsal, Portsall ?)
CAN (Caen)	†ABIRILLANT
HOUC (la Hougue ?)	
BARFLEU (Barfleur)	

† Added in MS—black ink.

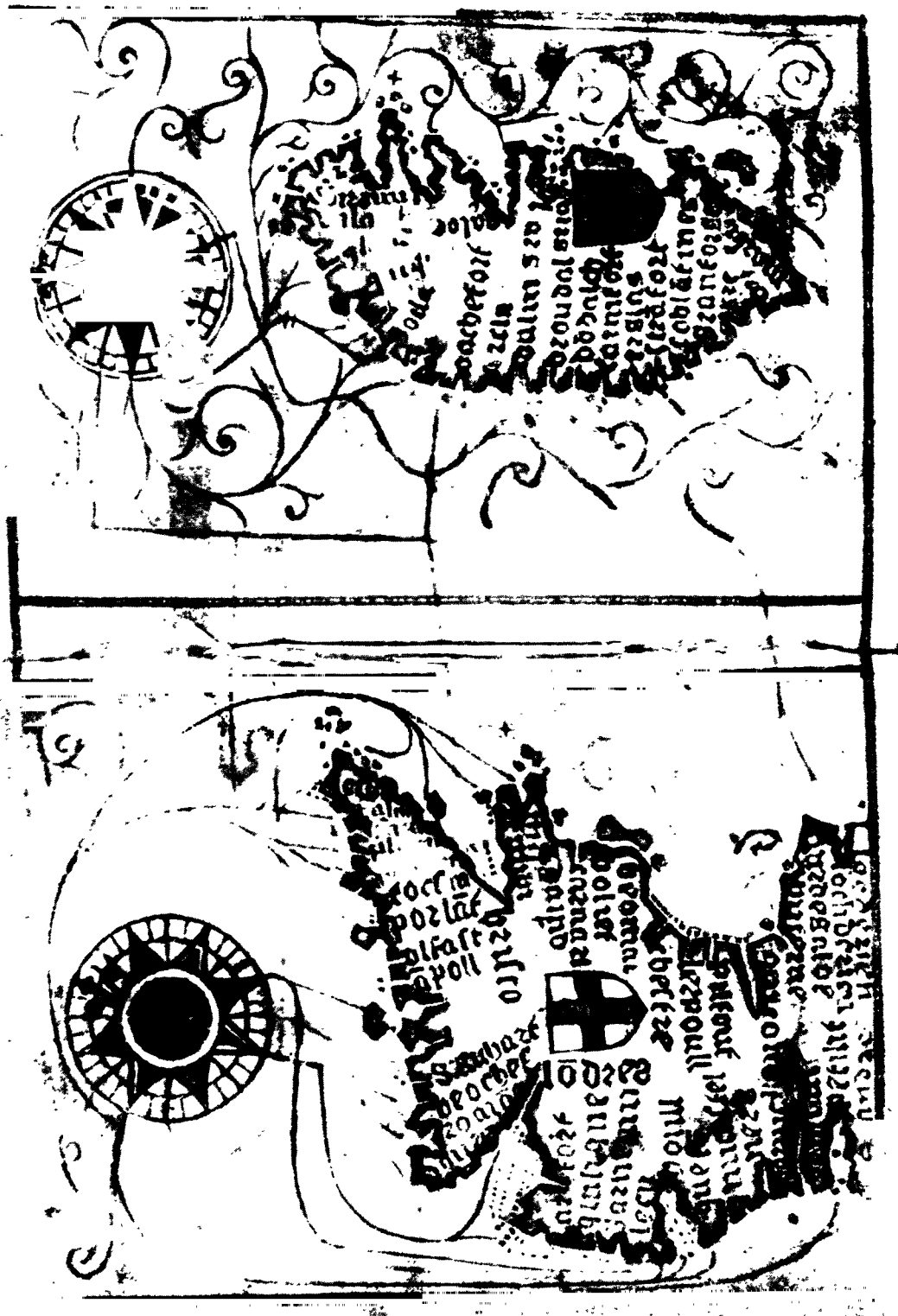


AN EARLY MAP IN THE BODLEIAN LIBRARY, OXFORD (Ashmole 135.2)

By permission of the Keeper of Western MSS.

FO. 1 verso, Bay of Discovery (see p. 486)

FO. 2 recto, Flanders, &c. (see p. 488)



AN EARLY MAP IN THE BODLEIAN LIBRARY, OXFORD (Ashmole 1352)

By permission of the Keeper of Western MSS

## NOTES AND NEWS

### FOLIO 2 VERSO, ENGLAND AND SCOTLAND (PLATE XIV, left)

*LOCDERIEN (Loc de Rien=Loch Ryan)	PORLÂT (Portland)
LOCHDERIEN	OLFAST (Handfast Point, Purbeck)
MURDEGALOE (Mur de Galoe=Sea of Galloway ; Luce Bay ?)	*ÂPOLL (Poole)
HUTORNE (Whithorn)	*PORSEMU (Portsmouth)
QUICOITBIT (Kirdcudbright)	S. RICHART
PILFOUT	BEOCHEF (Beachy Head)
LERPOULL (Liverpool)	ROMÆ (Romney)
CHESTRE (Chester)	DOURE (Dover)
BEOMAI (Beaumaris)	LÖDRES (London)
HOLIET (Holyhead)	ARFORT (Orford)
CARNAR (Carnarvon)	QUILIQUE
S. DAVID (St. David's)	JARNMU (Great Yarmouth)
*MILFORT (Milford Haven)	LECU (Lincoln ?)
TINIBI (Tenby)	HOULL (Hull)
BRISTO (Bristol)	QUEFF
LESAR (Lizard)	NUCASTEL (Newcastle-on-Tyne)
*FALMU (Falmouth)	NERR <i>or</i> NERG
*FAUIE (Fowey)	BORUIC (Berwick)
*PLEMU (Plymouth)	[ ] OMTAIL
*DARTEMU (Dartmouth)	PETILIT
TOCSM (Totnes ?)	†S. ANDRE (St. Andrews)

† Added in ms—black ink.

### FOLIO 3 RECTO, IRELAND (PLATE XIV, right)

CLERR (Clear Island, and Cape Clear)	ERGLAS (Ardglass)
*VALANT (Valencia Island ?—misplaced ?)	STRĀFORT (Strangford)
*GLANDOR (Glandore)	†COBLĀTINES (Copeland Islands)
*QUĪQESALE (Kinsale)	GRANFORGES
*CORC (Cork)	GRE
OCLA (Youghal)	*ORFLET
* ?	MARBU
OACHEFORT (Wexford)	VUS
ARCLN (for ARCLU=Arklow)	LARS
DULIN (Dublin)	GALOE (Galway)
DROUDAL (Drogheda)	?
DÖDALCH (Dundalk)	LIMERIC (Limerick)
†CARNIFORT (Carlingford)	

† Written in red ink over the print.

I. G. PHILIP.



# The Plan for Avebury

## AN APPEAL TO THE NATION

*The safety of Avebury is of such importance that we print in full the appeal which has been issued by the Avebury Preservation Fund, and hope that it will meet with generous response from many who are not yet acquainted with the details of THE PLAN.*

TWO years ago in an article in *The Times*, Mr Ormsby Gore, then First Commissioner of Works, drew attention to the urgent necessity of taking steps to preserve the surroundings of Avebury by means of a Planning Scheme, and expressed the hope that it would not be long before such a scheme was initiated.

That hope is now in course of fulfilment, for, in advance of the main Wiltshire Planning Scheme, a scheme has been prepared, under the Town and Country Planning Act 1932, for the planning and preservation of the village of Avebury and its immediate surroundings. Such a scheme, involving, as it does the prohibition of building in certain areas and its restriction in others, cannot be put into effect without the payment of compensation, and while the response of more than one owner has been immediate and generous, it is inevitable that a scheme of this kind, in which the element of preservation predominates, should be comparatively costly.

It is equally clear that the financial burden of such a scheme is completely beyond the capacity of the Marlborough and Ramsbury Rural District Council, which is the local Authority for the area, and from the beginning it was recognised that a merely local effort could not, in the nature of things, be sufficient if the end in view were to be achieved.

## THE LANDSCAPE

The land which is the subject of this Appeal lies round the head waters of the River Kennet, and stretches upwards, on the eastern side, to the crest of Hackpen. The Marlborough downs here drop westward in two steps or escarpments the first being the long, wavy, and delicately channelled slope of Hackpen itself ; and the second a short, abrupt fall from the chalk to the clay. Avebury is nearly in the centre of the undulating plain thus formed between the two steps. The whole landscape is typically of the chalk : quiet, spacious, and changing

## THE PLAN FOR AVEBURY

subtly with every shift of light and air and, by reason of its subtlety, exceptionally sensitive to deformation by any planting or building which is not in keeping with its lines and colours.

### THE MONUMENTS

But not only is the area one of natural loveliness ; it encloses a group of remains of antiquity unparalleled in these islands. To the north-west on Windmill Hill lies the once mysterious earthwork where excavations have revealed a remarkable Neolithic settlement. To Archaeologists the site is famous because the sequence of pottery discovered here has provided the framework for the modern classification of the British Neolithic cultures, but to the ordinary visitors it makes an appeal as the home of a forgotten people who left behind them vivid evidence of their manner of life in this period of the Stone Age.

Deserted by its inhabitants, this wind-swept hill was re-peopled at the close of the Neolithic period of North Wiltshire (1900-1800 B.C.), while, down in the valley, the gigantic monument of Avebury was being constructed by folk in the same late stage of Stone Age culture—the Beaker period—when the first bronze implements were finding their way into the south coast ports. Of this, the greatest among megalithic monuments, it is hard to speak except in superlatives. The stupendous circular ditch, with its equally impressive bank, encloses an area of over 28 acres. In spite of neglect and active destruction, many of the huge stones remain which, in the days before the monument had lost its original completeness, formed a series of majestic circles. But when the work of clearance of undergrowth and re-erection of buried stones has been completed, something of the ancient glory will return.

To the south, on Overton Hill, lies the site of other circles, of stone and of wood, which have disappeared, the former by wanton destruction in 1725, the latter in the course of natural decay long centuries ago. The site, with its circles carefully marked, is now in charge of the Office of Works. From the Overton circles run, in tortuous course, the extensive remains of a megalithic avenue, over a mile in length, entering the Avebury circle on the south. The northern part of this Avenue, where the fallen and buried stones have been set up in their original holes and the sites of lost stones appropriately marked, is now an imposing spectacle comparable with that which met the astonished eyes of Aubrey in January 1649.

A familiar feature of the landscape is Silbury Hill, beside the Roman road, between West Kennet and Beckhampton. Mysterious in its

## ANTIQUITY

origin it is the largest artificial mound in Britain. In 1663, Charles II, with Aubrey as his guide, visited Avebury and climbed to the top of Silbury Hill. At his command, Aubrey made his famous plan and wrote a description of the site of Avebury.

### THE CHURCH, THE VILLAGE AND THE MANOR

This is the prehistoric setting of the Avebury scene. Roman and Saxon have left their mark as well. Across the southern limit of the area runs the Roman road to Bath. In the parish church, just outside the Circle to the west, parts of the early 11th century building are incorporated in the present nave. Sarsen quoins and fragments of Saxon carving built into the structure tell their tale of historical succession, extending to the later middle ages, when the fine rood screen was set up, and, alas ! beyond this, to the 'restoration' of the 19th century.

Close to the church is the manor in its setting of English loveliness, of lawn, of green valleys, and of ancient trees. Part of the present building dates from before 1548, and it was in the second half of the 16th century that the main additions were carried out, though much interior decoration was done in the 17th century.

The village has encroached upon the Circle, but to no really harmful extent. Condemned houses will go and they will not be replaced. Avebury itself will remain in its country peace, with its agricultural needs unhampered, and the monuments of its age-long history all about it ; it will be preserved not as a dead museum piece, but as a living witness to the continuity of civilisation in a corner of England.

### WHAT IS TO BE DONE

The areas covered by the prehistoric remains will be preserved for ever from building, and, by the willing co-operation of the owner, the Manor house and grounds as well. So much will be gained at the outset, but this will avail little if the incomparable surroundings are to be left open to desecration. Over the main part of the downland no new buildings will be allowed, except for agricultural purposes and necessary extensions of existing buildings. In other words, the prosperity of Avebury as a modern agricultural community will be safeguarded and future development will be amply provided for by the setting aside of adequate sites for new buildings.

But, beyond this, it is necessary that in the administration of the scheme, money shall be available for ensuring that new cottages are

## THE PLAN FOR AVEBURY

built so as to harmonise with this setting in colour, materials and lay-out; that the planting of trees in suitable positions shall continue; that all which is truly hideous shall ultimately disappear and that Avebury shall be preserved and continued as a monument of history and a thing of beauty for all time.

The scheme will be controlled partly by a special body composed of representatives of the County Council, the Rural District Council, the Parish Council, H.M. Office of Works, the Council for the Preservation of Rural England, the Wiltshire Archaeological and Natural History Society, and partly by the National Trust.

These are the objects of our appeal. The National Trust has kindly promised to receive the subscriptions and to hold the funds for the purposes of the scheme. We estimate that a sum of £11,000 (towards which promises of £4,000 have been made privately) will enable the ends we have set before us to be accomplished. The very smallest amounts will be acceptable. We ask all those who love the English countryside, who reverence our long history, and who wish to see what is still unspoilt preserved for our children's children, to give as generously as they can.

ERNEST WILLS, *Lord Lieutenant of Wiltshire*  
BATH, *Chairman of the Wiltshire County Council*

BALDWIN OF BEWDLEY

PHILIP SASSOON, *First Commissioner of Works*

W. ORMSBY GORE

STANHOPE

ZETLAND, *Chairman of the Executive Committee of the  
National Trust for Places of Historic Interest  
or Natural Beauty*

CRAWFORD AND BALCARRES, *President of the Council for  
the Preservation of Rural England*

F. G. KENYON, *President of the Society of Antiquaries  
of London*

H. C. BRETNALL, *President of the Wiltshire Archae-  
ological and Natural History Society*

B. HOWARD CUNNINGTON

*Subscriptions should be sent to THE AVEBURY PRESERVATION FUND,  
Barclay's Bank, 23 Grosvenor Gardens, London, S.W. 1.*

## Reviews

ANCIENT IRELAND. By R. A. S. MACALISTER. *Methuen*, 1935. pp. XII, 307, 24 plates, maps. 10s 6d.

In his introduction Dr Macalister states that this work is intended as a supplement to his *Archaeology of Ireland*, published in 1927. He now adopts a more anthropological standpoint, and attempts 'to work back through the artifacts to the men who made them, and to reconstruct the conditions in which they lived'. This after all is the aim of all archaeological work; and frequent reference to scientific archaeology, and to the need for discarding old delusions, whether due to misguided patriotism or romanticism, causes us to start out in high hope that here at last we are to have the survey of the pre- and early history of Ireland which we so badly need.

Dr Macalister writes persuasively, if sometimes a thought too poetically; and much of what he writes is interesting, even amusing. He is not afraid to say occasionally that 'we do not know'. But his hesitancy to commit himself on some issues is more than compensated by the extraordinary views which he advances on others—views which appear to be quite unrelated to any of the evidence marshalled in his earlier work or anywhere else. Even within the somewhat elastic limits allowed for a tentative theory a book which claims to deal with scientific archaeology must be expected to pay some regard for the well-established rules of archaeological evidence. The expert can no doubt be left to look after himself; but it does seem necessary to warn the 'ordinary' reader, for whom *Ancient Ireland* is evidently also intended, that much that appears in it seems to disregard rules and evidence alike. This seems to be particularly true of the earlier part of the book, to which what follows applies.

When, for instance, Dr Macalister states that the coming of the Middle-Late Bronze Age Sword-Folk interrupted or at least modified the development of the native Bronze Age in Ireland, we are ready to agree with him; for we can recall the changes in metal equipment outlined in the *Archaeology*, and there is an abundance of evidence for the same phenomenon from elsewhere in the British Isles. But when in the next breath he says that the Sword Folk built—or caused to be built—the round chambered cairns of New Grange type, the idea strikes us as unusual, to say the least; and we are not perhaps surprised to find that a search in all the usual places, including the *Archaeology*, quite fails to produce any evidence of the type that most archaeologists would demand. Dr Macalister has chosen here to ignore the quite considerable body of information, from Ireland and beyond, bearing upon the date and cultural context

## REVIEWS

of this type of tomb, not to mention those of the sword folk ; and instead has created a fantasy of his own (to which justice can hardly be done here) to explain a feature which is repeated in other tombs of the same type outside Ireland.

Other examples of the same kind of thing present themselves, though perhaps none is so outstanding as this.

Dr Macalister's treatment of the Keltic question also commands attention. Here certainly we start with a general reservation on the grounds of our ignorance.

But the resulting tentative statement (which in its final form—p. 85—becomes a statement of fact) includes an assumption that the Beaker People were Keltic and probably Brythonic. (This assumption, it is true, is discarded a few pages later). The Sword People (' who appear to have been brachycephalic '—why?—' and if not actually identical with at least cognate with the Beaker People at a later stage of cultural development ') were apparently Goidelic. Ireland therefore became a Keltic-speaking country at about the ' turn ' of the first millennium B.C., in the Middle-Late Bronze Age.

In this explanation the presence of two subsequent Iron Age invasions would seem to create difficulty. But Dr Macalister disposes of the first with the statement that as yet nothing is known of it ; while the second (of La Tène II), because of the tall stature and fair complexions of its people, was Teutonic—as Teutonic, indeed, as the Saxon invasion of England. The first explanation is certainly convenient ; the second discards archaeological and similar evidence in favour of folk-tales and traditions.

For one reader at least, therefore, the first hopes have ended in disappointment : the survey of prehistory in Ireland has still to come. Its writer will need to consider with care many of the ideas expressed in *Ancient Ireland*, in particular Dr Macalister's argument that climatic fluctuations have played the chief part in directing events. But unless archaeologists in recent years have been working on the wrong lines he will give more attention to pottery and other artifacts than Dr Macalister seems to have given. He will recognize the value of folklore and tradition as indicators, but he will surely not employ them (against the other evidence) as a means of solving detailed problems. And while our writer will insist on giving the artifacts their full value, he will not also expect them to achieve the impossible. They cannot, for instance, shed light upon the language of their makers. No one can say what language the Beaker People or the Sword Folk spoke ; nor can we even talk in terms of probabilities until their descent to linguistic groups recognized and recorded in historic times can be traced. Anything else is sheer guesswork, waste of time and misleading when presented as established fact. Signs were increasing that archaeologists recognized this : the revival of the old theorizing by one of the standing of Dr Macalister is therefore all the more unfortunate.

W. F. GRIMES.

## ANTIQUITY

SOVIETSKAYA ARCHEOLOGIYA. No. 1 (Akademiya Nauk USSR : Institut Antropologii, archeologii i yetnografii), *Moscow and Leningrad*. 1936. pp. 305.

While much admirable archaeological work, both in the field and in museums, has been done in Russia since the revolution, publication has fallen even further behind excavation than it was in Tsarist times. Archaeological journals have been few, badly printed, inadequately illustrated and burdened with a perhaps disproportionate quantity of polemical articles. The new journal, started by the Archaeological, Anthropological and Ethnographical Institute of the Academy of Sciences, is therefore to be welcomed if only as offering a new channel for publication. It is, however, actually a better channel than any of the periodicals hitherto appearing regularly. The paper and printing are good, the line and half-tone illustrations all adequate and some of the plates first-class. Best of all, for the benefit of western peoples concise French summaries have been courteously appended to all the articles (with the exception of reviews and the short reports on recent work).

The editorial, 'Our Programme', insists on the historical importance of archaeology because 'it collects and studies the concrete monuments of the history of culture which give a clear idea of aspects and realities of the historic past that written sources cannot fully illuminate', on the necessity for publication and on the need for accurate field methods (it is still thought necessary to protest against the 'excavation of tumuli by shafts and of settlements by trenches' as survivals of old bourgeoisie archaeology). A further duty is a 'merciless struggle against the pseudo-scientific writings of fascists and the persistent exposure of fascist falsifications of archaeological facts in order to build up a truly objective science'. But even an antifascist may enquire whether 'la lutte sans merci contre les altérations de tout gendre du marxisme-léninisme qu'on rencontre encore dans notre littérature historico-archéologique' is really essential to, or even quite compatible with, 'a truly objective science'. For instance, in his article 'On the potter's art in primitive communist Society in the Forest Zone of European Russia' Voevodskij very properly and ably shows how certain ceramic forms and styles and techniques of decoration are restricted to specific climatic and floristic zones in Eurasia and America, and associated with the economies appropriate to such zones. But this observation does not perhaps suffice in itself to establish 'the absurdity' of 'bourgeois' theories explaining really striking agreements in pottery between even Finland and Massachusetts as the results of migrations. The migrationist hypothesis should hardly be so rigidly excluded, though, in view of its predominant authority, emphasis on the alternative is thoroughly justified. In any case Voevodskij's observations on the technique of the Eurasiatic pit-and-comb

## REVIEWS

decorated wares in Russia, supported by excellent illustrations (including photographs of the comb stamps found on several dwelling-places) is a fine example of objective science in a universally accepted sense.

Other articles deal with rock engravings round Lake Onega and the White Sea ; the age of some Scythian barrows on the Middle Dnieper, dated too low by Rostovtseff ; microliths (apparently without gravers) from the Amur basin ; Copper Age and Sarmatian barrows in the Kalmyk territory ; a Gothic cemetery near Pashkovskaia on the Kuban, the camp (*gorodishche*) of Yelisavetinskaya near Krasnodar ; the mesolithic industries of Chan koba in Crimea ; and the 'stone fishes' of Siberia. The last named are shown by grave finds to be early neolithic ; 'the absence of poor graves indirectly attests the existence of a matriarchal régime and the communistic character of modes of production and life'. From the contents one infers that communist archaeology might still profitably study bourgeoisie techniques : it is as hopeless to reconstruct the plans of the Copper Age barrows from the data here given as it is in the case of Northumberland barrows described by Greenwell. We shall only begin to understand the important cultures of the Pontic steppes when van Giffen's methods are employed there. V.G.C.

**JUNGSTEINZEIT-SIEDLUNGEN IN FEDERSEEMOOR.** By R. R. SCHMIDT. Parts I and II (to be completed in 3 parts). *Stuttgart : Ferdinand Enke Verlag*, 1930-1936. *Price in Germany, Switzerland, Palestine, 50 marks ; elsewhere, 62.50.*

In 1919 the Urgeschichtliches Forschungsinstitut of Tübingen under the veteran R. R. Schmidt conceived the bold project of a systematic geological, botanical and archaeological exploration of the Federsee mosses with a view of obtaining a comprehensive picture not only of complete prehistoric villages, but also of their environment. The conception was a noble one and at that date heroic. It has been realized by ten seasons of digging. It is not the excavators' fault that publication has been so long delayed since the firm that brought out the first part was dissolved in 1931. But the delay has lost the Institute the distinction of being the first to excavate and publish a complete neolithic village. Even so the hamlet of Aichbühl with its nineteen dwellings had been almost completely excavated before the operations at Köln-Lindenthal (described in *ANTIQUITY* 1936, p. 502) had been started.

As Prof. Schmidt foresaw, the peat has preserved not only wooden buildings but also a record of the climatic and floristic environment in which the builders lived. To take full advantage of this exceptional circumstance geological and pollen-analytical investigations proceeded hand in hand with the excavations. K. Bertsch's pollen diagrams give a precious picture of the changing flora of the



## ANTIQUITY

region since the time of glacial tundras. His conclusions have already been stated in the XVIII *Bericht des römisch-germanischen Kommissions*, 1928, as well as in botanical journals. Here Schmidt merely summarizes his results, reproducing a few diagrams. The neolithic settlements fall in the sub-Boreal phase during which the percentage of beeches in the local forest was steadily increasing ; the period's dryness must therefore have been seriously exaggerated by earlier writers.

The rest of these two parts is devoted to the architecture of the Aichbühl hamlet. It consisted of 19 dwellings, a couple of sheds and a large house of non-domestic character, termed an ' Assembly-Hall '. The houses were grouped in four rows, facing a bay of the neolithic lake to the southeast. In front of each house a rectangular area had been strewn with stems and boughs to make a dry court in the wet peaty soil. Sometimes the courts of adjacent houses were joined up by corduroy ways. The dwellings were elongated rectangles, walled with split tree-stems set upright, covered with a gable roof (implied by a central row of four stout posts) and entered from the gable end. Each house was normally divided by a partition of doubtful height into a shallow antechamber or kitchen and a deeper sleeping room. A fireplace stood in the kitchen to the right of the door with an oven behind it. The inner room was heated by a hearth close up against the partition. The floors were of clay (with double layers of birch-bark under the hearths) but rested on a layer of tree-stems or split logs tightly fitted together on the peaty subsoil.

The floors apparently tended to sink into the peat and were accordingly renewed, four times in houses 2 and 13, thrice in 14, and once or twice in the rest. Sometimes the walls too were reconstructed. House 15 is substantially larger than the rest and is therefore reasonably called ' the Chief's House '. It fronts onto the ' village green ' in the middle of which stands the ' Assembly Hall '. The latter is undivided and was apparently entered through two doors in a long wall. The corduroy court was, however, situated, as usual, at the (? closed) gable end so that the assembly met with muddy feet. Each house is described in detail with plans, sections and several excellent photographs inconveniently scattered about on different plates. Usually only the original ground-plan (with every piece of wood indicated) is illustrated, but uprights belonging to later reconstructions may be included. Many instructive details about prehistoric carpentry and domestic life can be learned from these descriptions, but the reconstructions are not always entirely convincing, and the history of house 3 is disturbing. It is described and planned on p. 75 as a normal two-roomed house with the rear wall ' ergänzt '. Yet supplementary excavations in 1930 seem to have revealed a perfectly good rear-wall with a narrower rectangular annexe beyond it.

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Though the terms 'Aichbühl pottery' and 'Aichbühl phases I and II' are used, the relics that might give content to these terms are not described nor illustrated in the extant parts. Instead there is a lengthy recapitulation in which the twenty-three simple buildings are divided into the maximum number of distinct types (10 by plan), invested with classical names and so related to Greek architecture. Any long rectangular house is called a *megaron* even though it lacks the pillared fore-porch and central hearth of the halls at Mycenae, Tiryns and Troy to which the term was first applied. If the side walls extend a foot or so beyond the end wall, the extensions are labelled *antae*. The rectangular annexe to house 3 is termed an 'apse'. And in part III, where we hope for detailed descriptions of relics, we are promised a historico-comparative section 'establishing the connexion between the Northern and Mediterranean architectural forms in ancient Europe'. Still, this worthy publication of a pioneer enterprise, nobly conceived, will remain a classic indispensable to any archaeological, architectural or botanical library. V. G. CHILDE.

THE JEW AND THE UNIVERSE. By SOLOMON GOLDMAN. Harper, 1936. \$2.50.

A year or two ago Dr Goldman, who is the Rabbi of a Chicago synagogue, was asked to deliver to the University of Illinois an octocentenary address in honour of the 12th century Jewish philosopher Maimonides. The book under review is an expansion of this address and attempts to establish a contrast between the Jewish world philosophy and western materialism. Two quotations will serve to illustrate the author's main contention: 'It is difficult for the occidental nourished on the syllogism to allow that there are either elements of reason, or appreciable intelligence in any other scheme or thought than his own. Any view of the universe which cannot be stated in major and minor premises, he regards as irrational, uncivilized, oriental'. And on the other hand 'looking at the universe organically, synthetically, qualitatively, or briefly in terms of personality, is deeply embedded in the Jew's consciousness'. The Jewish thinker 'places intuition, the instinctive comprehension of life as a whole, before logic or metaphysics'. In this connexion Dr Goldman naturally refers to Henri Bergson, whose philosophy is based on the distinction drawn between intuitive and intellectual knowledge, and the resultant resolution of the problem of free-will. But he dismisses him slightly, for Bergson has 'of Judaism, only what the blood stream can carry of such matters . . . We shall have to look elsewhere for genuine Jewishness. But wherever we will find it we will discover the personality, organic, intuitive view of the universe predominating'.

Moses Maimonides himself, whose philosophy and writings, especially in their relation to Aristotle, are examined in detail, was born at Cordova early

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in the twelfth century, and as a youth passed into exile and found a new home in Egypt. Thus his environment was an Arab one. Curiously enough, in view of the picture of the Jew which Dr Goldman wishes to paint, the guiding principle of Maimonides' intellectual life was his passion for reason and logic. He made the basic assumption that there could be no opposition between religion and philosophy and hence that the popular phraseology of the Bible must veil the profoundest metaphysical truths. Essential among these was the doctrine of the incorporeality of God. Judaism was necessarily the acme of reason, and this perhaps explains why he was ahead of his time in rejecting, and indeed severely denouncing all that accretion of kabalistic and magical practices, necromancy, divination and astrology which clung about his co-religionists. But it was to the study, codification and exposition of the minutiae of the law in terms of Reason that, according to Dr Goldman, this medieval thinker gave his major strength. Neither intuition nor reason alone are safe guides. 'Judaism, Maimonides guessed, was a living entity only because and in so far as its Law lives'. And 'the laws affecting the Jew's daily life [make] for the continuity of the Jewish people, for the preservation of specific Jewish values'. No present day validity is, however, claimed by the author for Maimonides' metaphysical system, he is simply to be admired as a 'great humanitarian', a 'ray of light'. The whole book is, indeed, strangely inconclusive, perhaps because of that bondage to the Law which the orthodoxy of the author implies. Rabbi Goldman clearly wishes to wean Jewish youth from the worship of occidental logic (leading to fascism and nazism), and all he can offer them is a seat at the feet of the Prophets, Sages and Rabbis. The great Jewish intellects of today are, however, outside the Synagogues. Interesting for the light it throws upon orthodox American Jewry, this book has neither the profundity nor the importance that its title suggests.

E. G. R. TAYLOR.

THE STUDY OF THE HISTORY OF SCIENCE. By GEORGE SARTON.  
*Harvard Univ. Press, Cambridge, Mass., 1936. pp. 75. \$1.50.*

SCIENCE IN ANTIQUITY. By BENJAMIN FARRINGTON. *Thornton, Butterworth* (Home University Library), 1936. *pp. 257. 2s 6d.*

Dr Sarton is well known as a pioneer in a subject that is still almost unrecognized even by the learned—the History of Science. This book is an Inaugural Lecture delivered at Harvard University where a seminary for that subject has just been established. As might be expected it contains many wise sayings, and an enunciation of first principles. The archaeologist will agree that 'the history of science must be made to begin with the fundamental inventions: language, drawing, writing, artificial fire, elementary tools, etc.' and that the inventors of these things were 'not a bit inferior' to the great inventors of

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modern times. Equally true but not yet universally accepted is the theorem that 'the acquisition and systematization of positive knowledge are the only human activities which are truly cumulative and progressive'; and its corollary, that 'the history of science is the only history which can illustrate the progress of mankind. In fact, progress has no definite and unquestionable meaning in other fields than the field of science'. When these truths are accepted, the ensuing purgation of historical text-books should simplify the task of teachers; but the time is not yet. Meanwhile the present book may be heartily commended to all who wish to form their ideas; and for those who wish to go further the admirable 'critical, classified bibliography' of 16 pages will be very useful.

Professor Farrington has an excellent appreciation of the meaning, as well as of the history, of science; though of course the two are complementary. His book deals in a most enlightening manner with two standing problems—why did not the Romans discover power-mechanics? and why did the knowledge of science almost become lost at the beginning of the Christian era? Why was it that 'from the fifth to the tenth century . . . humanity went backward?' Only a superficial view attributes this decay to Christianity; 'it seems more in accordance with the truth to see in the decay of science one of the conditions for the spread of these religions [of which Christianity was one] than to see in the triumph of one of them the explanation of the decay of science'. In other words, as Professor Farrington says, 'the quest of positive knowledge . . . is essentially social; it is bound up with the practical needs of the society in which it flourishes, or decays'. The Romans had no need of power-mechanics because their social system was based upon the cheap labour of slavery; and they were succeeded by feudal lords whose serfs performed a like function. The full development and implications of these ideas are naturally beyond the scope of the present volume. Meanwhile we are grateful for a most stimulating essay. It is good to see that the Home University Library—'friend of our youth'—is still going strong.

O.G.S.C.

**MESOPOTAMIA**: excavations on Sumerian sites. By SETON LLOYD. *Lovat Dickson*, 1936. pp. XIII, 198, 6 figs., 16 plates. 6s.

Mr Seton Lloyd, who has taken part in excavations in Mesopotamia, has undertaken to make known to a wider public the results of excavation on the chief Sumerian sites during the last fifteen years. After a technical chapter on the conditions of work in Mesopotamia—dealing with the character of the remains, means of access and method of digging—Mr Seton Lloyd passes in review the excavations of Obeid and Ur which brought to light the monuments of the first dynasty of Ur and of those which immediately preceded it; the

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excavations of Uruk and Jemdet Nasr which have given their name to two preceding civilizations characterized by their associated pottery ; and finally the excavations of Tell Asmar and Khafaje in the Baghdad region, principally famous for their richness in remains of the early dynastic period. These discoveries are also dealt with in a special chapter, in the light of subsidiary excavations rich in pottery typical of the main sites, thus enabling a system of relative chronology to be established. The author recalls that Sir Leonard Woolley puts the beginning of the Royal Tombs a little after 3500 B.C. and the dynasty of Ur at 3100 B.C., whilst Mr Frankfort places the latter at about 2900 B.C. To the archaic historical period belong religious buildings whose plans belong to two types ; the northern type, whose entrance is in a side of the building, and the southern type where it is in its longer axis. The study of these tombs leads naturally to a description of the Royal Tombs of Ur which seem to find their analogue, so far as the practice of human sacrifice is concerned, in the oldest parts of the Y cemetery at Kish. Statuary is carefully portrayed and studied in the concluding portion of the book. Of the Akkadian period, whose structural peculiarities are described (palace of Tell Asmar), we may select for mention an admirable bronze head from Nineveh representing perhaps a monarch of the dynasty of Agade. The book is written in a good clear style and provides an accurate and useful summary of recent discoveries in Mesopotamia.

G. CONTENAU.

THE EXCAVATIONS AT TELL CHAGAR BAZAR AND AN ARCHAEOLOGICAL SURVEY OF THE HABUR REGION 1934-5. By M. E. L. MALLOWAN. *Oxford University Press*, 1936. pp. 59, 29 figs., 3 pls. (Reprinted from *Iraq*, III, part 1). 10s 6d.

The archaeological exploration of the Habur region led Mr Mallowan to study Tell Chagar Bazar, near the Wadi Hanzir, a tributary on the left bank of the Habur. The tell is about 72 km. east of Ras-el-Ain and Tell Halaf. As an outcome of these researches it is evident that the very ancient civilization of this region conforms with that of which traces have been found at Nineveh and Arpachiyah. On the old surface-line (virgin soil) is found a type of pottery closely linked with that of the deepest strata at Nineveh (which itself compares with that of Samarra) ; next above comes an important stratum more than four metres thick, containing Tell Halaf pottery. Then, with a complete absence of Obeid pottery, comes a stratum which can be assigned to the beginning of the historical period (about 3000 B.C.), in which has been found pottery comparable with that characteristic of the 5th stratum of Nineveh. It should be noted that in one of the oldest strata in which Tell Halaf pottery occurs, a copper necklace-bead has been found. The Tell Halaf period is therefore Chalcolithic.

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Mr Mallowan's excavation is a valuable contribution to the study of those primitive periods whose general character is gradually becoming known with some precision. G. CONTENAU.

FOUILLES EXÉCUTÉES À MALLIA. 2me rapporte, exploration du palais (1925-1926). Par FERNAND CHAPOUTIER et RENÉ JOLY. Paris : Paul Geuthner, 1936. pp. 53, 36 plates, text-figures and plans. 80 francs.

This volume is the second report of the important excavations carried out by the French School at Athens on the site of Mallia. The first appeared in 1928 and described the greater part of the west wing of the palace together with some of the northern and eastern sections. Next came the publication, in 1930, of the inscriptions already found. The present work contains the results of further explorations round the central court, and we are promised shortly a volume describing the remaining parts of the palace and another on the cemeteries which will include the celebrated 'Khrysolakkos' or 'Pit of Gold'.

The palace is near the village of Mallia and half a mile from the shore at a spot called Zgourokephalo. It is a typical Minoan site, eloquent of the peaceful conditions prevailing throughout most of the Bronze Age, the low rise on which the palace is built contrasting with the rocky eyries of the early Iron Age and the walled acropolises of the Archaic and Classical periods.

The palace as it now stands occupies an area of about 104 by 84 metres compared with the 120 by 140 of Phaistos, the 140 by 150 of Knossos and the 40 by 50 of the manor-house at Gournia. In plan it very much resembles Knossos in its west court, its central court with verandahs on two sides, the magazines and shrines on the ground floor of the western wing with evidence of state rooms above and the narrow sea-gate to the north protected by a heavily walled 'donjon'.

The east wing is not yet finally published, so that no comparison of the domestic quarters can be made.

The northern quarter has a number of unusual features, and an interesting solution of the irregular disposition of the aisles in one room is suggested by a combination of the hypostyle hall and the primitive house which gave its shape to some of the tombs at Mokhlos and Kastri. The eastern verandah, facing onto the central court, had square piers alternating with round columns on the paving, between which appears a regular row of sockets into which no doubt a grille of metal or wood was fitted. Behind the verandah lay a blank wall pierced only at the south end to give access to the row of magazines which lay to the east. These magazines have a central runnel leading to a sunken vase at the far end to collect any liquid which might be spilt from the store jars which

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line the sides. The south façade of the central court is broken by a number of setbacks, similar to those in the west court at Knossos. The irregularity in this case inclines one to agree with the excavators that the object was to obtain a play of light and shade.

Near the south end of the west wing appeared the lower treads of an imposing staircase, to the south of which a small portico with a single column led to a raised platform with a stone bench at one end in front of which lay a circular slab of stone with a central depression surrounded by small holes. This the excavators have interpreted as a table of offerings. Sir Arthur Evans however (*Palace of Minos*, III, 392) argues with many parallels for its being a gaming board. His interpretation certainly seems the more probable and, religion and games being so inextricably connected, by no means rules out the sacred character of this area.

The architectural details are those with which we are already familiar at Knossos and elsewhere. The stones used are limestone and a local conglomerate. It is noteworthy that gypsum, which was used for facing walls and for paving in the richer palaces does not appear, and the comparative poverty of the site is shown in the more frequent use of unbaked brick for the upper courses. A local peculiarity seems to be the restriction of stone paving to the interior, open courts being paved with hard waterproof 'taratsa' which at Knossos is used only for light-wells.

The history of the site cannot be determined with certainty until further tests below the existing floors have been made. At the moment the excavators incline to the belief that the whole structure in its present form is of M.M.III date. They are willing, however to admit the presence of some structure as early as E.M.III-M.M.I. From a study of the publication it seems that more of this structure remained permanently in use than they are willing to allow. The west wing in particular with its blocks of insulae and the entrance running directly eastwards from the west court bears a strong resemblance to the west wing of the M.M.I palace at Knossos. So does the 'donjon' by the north entrance. A good deal of M.M.I pottery was found, some actually on the floors. The assumed desertion of the site in M.M.II need not trouble us. It has already been pointed out by Åberg and others that M.M.II is a style of pottery peculiar to the great palaces of central Crete and that a mature form of M.M.I pottery (M.M. 1b) continues elsewhere right down to M.M.III. M.M.II is, in fact, like L.M.II, a purely palace fabric and when found in eastern Crete must be regarded as an import. Therefore it is quite on the cards that the M.M.I palace has in a large measure survived with but slight modifications and repairs, necessary after the earthquake which preceded the opening of M.M.III. It must be remembered that it is always the latest period of occupation which leaves

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most traces on the floors.\* But no doubt further tests will clear up this and other matters.

The lower limits for the palace seems to be L.M.1a. Perhaps it suffered more than Knossos from the earthquake which occurred towards the end of that period; perhaps the concentration of power in the big cities of central Crete in L.M.1b affected it as it affected a number of small sites. At all events it was abandoned.

The finds described in this volume are few and include nothing comparable to the magnificent broadsword or the stone axe in the shape of a leopard published in the first report. A small group of daggers and chisels and a few stone vases and lamps are the only objects save pottery. The pottery has suffered from some chemical action of the soil which has destroyed much of the paint and has in some cases left a white deposit over the whole vase. The authors speak of its close relationship with that of east Crete, but with the exception of the M.M.1 vase shown on plate XI and the piece of decoration shown in figure 8, which seems to be a bastard version of a typically east Cretan motive, the rest of the pottery can be paralleled most easily in central Crete.

The volume is well produced, and the following criticisms are merely the expression of what the reviewer personally would like to see in succeeding reports.

The text seems unnecessarily long. Much of what is said can be read straight off the plans, and in the case of objects could be seen from the drawings and photographs, were the former given some scale and were the latter clear enough. It should surely be easy to include a scale on each plate or figure and to keep all the objects in the same figure to the same scale. Plates xxxi and xxxii were hardly worth including; both photography and reproduction having failed to give the details they are intended to illustrate. The drawings of vase shapes is on no consistent plan. They are done indiscriminately in line, in silhouette, and in section. If they are done at all they should conform to the system in force in England, Egypt, Palestine and Mesopotamia, whereby one half is drawn in elevation and the other in section, and, again, the scale should be the same for all, say one-sixth.

The detailed plans are good, though 'rendering' always tends to make them look fussy, and they really do illustrate the points made in the text. They might perhaps with advantage have been reduced slightly and used as text-figures. But that is always an arguable point. The general plan at the end can be opened out while reading, a very good feature; and the part of the building described in the text is coloured red.

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\* That is why L.M. 1b is so scantily represented in the palace at Knossos. The transition to L.M. II was marked by no catastrophe to seal in the deposit and the old-fashioned vases were merely swept up and thrown away in favour of the new style.



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The architecture and the finds are not closely enough related. True, in the brief catalogue at the end, the spot where each object was found is given. But for convenience it would have been much better to have given a brief résumé, after the description of each room or group of rooms, of the objects discovered in them with a reference if necessary to the more detailed catalogue at the end.

But these are minor points and no doubt we shall eventually be given a volume which will survey the palace as a whole. It is a pity, however, that the results up to 1931 could not have been included. The present piecemeal publication has a necessarily scrappy appearance and surely five years should be enough in which to expand the preliminary reports of the *B.C.H.*

J. D. S. PENDLEBURY.

### FOUILLES DU TÉPÉ-GIYAN PRÈS DE NÉHAVEND (1931 et 1932).

*Par* G. CONTENAU *et* R. GHIRSHMAN. Sondage du Tépé-Djamshidi ; sondage du Tépé Bad-Hora (1933) *par* R. GHIRSHMAN. Note sur les têtes osseuses *par* H. VALLOIS. *Paul Geuthner*, 1935. *pp.* 144 *and* 109 *plates.* 150 *francs.*

The antiquities of Nihavand are in a sense a by-product of castor oil and opium. This apparently strange association arises from the fact that the mountaineers of western Iran fertilize their fields with the nitrogenous soils of ancient mounds. Two thirds of the mound of Giyan had been removed by the peasants before scientific excavations were begun ; the rich earth helped the local farmers to produce the principal laxative of the West and the principal sedative of the East, and from the same earth came harvests of antiquities which eventually found their way to European markets.

Tepe Giyan lies two and half hours on horseback from Nihavand, which stands at a height of 1800 metres (about the same altitude as St. Moritz) in the last of the valleys that flank the north scarp of the mountains of Luristan. The strategic importance of the site may be gauged from the fact that in A.D. 641 Nihavand was the scene of a decisive battle as a result of which the Persian empire succumbed to the Arabs. Giyan lay on a direct route from Hamadan (Ecbatana) to Susa *via* Luristan ; further, it commanded a route to Mesopotamia *via* Kasr-i-Shirin.

When the Expedition sent out by the National Museums of France set to work, the mound stood to a height of 19 metres. Of the total accumulation the top 9 metres consisted of a series of cemeteries which could be divided into four main periods falling approximately between 1100 and 3000 B.C. The succession of graves was interrupted by two buildings with pisé walls on rough stone foundations indicating a certain lapse of time between levels 1 and 2, and again between levels 2 and 3. The bottom 10 metres contained a thick

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accumulation of prehistoric debris which consisted for the most part of painted sherds of the chalcolithic period. All the graves were simple pit inhumations, without any stone construction. The principal strata from top to bottom may be summarized as follows :

1. Top 4 metres. Graves 1-63. The upper end of the stratum consisted mostly of unpainted pottery, but towards the bottom there was a considerable increase of painted pottery. The principal shapes include caliciform vases with or without handles and spouted 'tea pots'. The designs, which were in red or black paint, were chiefly geometric, but plant designs and a bird occur. Most important is a series of grey-black burnished pottery often similar in shape to the painted ware and exactly paralleled by finds in the Caucasus and at Tepe Hissar in the Elburz mountains. In grave 10 there was a bronze dagger with a hollowed handle, a well-known Luristan type ; Luristan pot-forms also occur. At the top end of the stratum iron objects were found, *e.g.* parts of an iron harness : towards the bottom iron ceases to be found, and there is a bronze dagger of Caucasian type. Two important lines of evidence suggested a date for this stratum ; first, at the lower end, a cylinder seal in the Kirkuk style which can be dated to *c.* 1450 B.C. ; secondly a caliciform vase with a spiral design, and a silver pendant analogous to objects in the Shushinak deposit from Susa of the 12th century B.C., agree with the date suggested by the iron weapons at the top end. The late limit therefore coincides with the beginning of the iron age proper, and the earlier limit must be correlated with the Nuzi palace period (*cf.* the Kirkuk cylinders). Approximate date 1100-1400 B.C.

2. Level 4-5.5 metres. Graves 64-82. Characteristic pot forms are the caliciform vase, crateres, handled cups, and a kind of albarello. The principal designs, apart from the purely geometric, are birds and rayed suns usually applied in metopes on the upper half of the pot, the surface of which is usually of a whitish clay. The vases decorated with plain horizontal bands on a whitish ground are related by the authors to wares from the Phoenician coast said to be under Mycenaean influence ; there are also parallels in eastern Syria. The same stratum contains an axe with a ribbed socket analogous to west Syrian types of the second millennium B.C. It is important to emphasise the fact that the building at the top of this stratum indicates a break between Giyan 1 and 2. The gap between Giyan 2-3 is perhaps filled by the material found in M. Ghirshman's soundings at Bad Hora and to the intermediate period between Giyan 1 and 2 we might assign the material from the top stratum at Chagar Bazar east of the Habur. Approximate date, 1400-1800 B.C.

3. Level 6-7.5 metres. Graves 83-101. This stratum is again separated from the one above it by a building which indicated a lapse of time between the two cemeteries. The lapse between Giyan 2 and 3 is further rigidly defined by

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a very different ceramic which makes use of red clays and often of red slips with black designs. The upper portion of the vase often has a white slip, a technical characteristic which can be paralleled in Cappadocia. A distinctive type which only occurs in this stratum is a tripod vase often surmounted by small cups which adhere to the rim (*godets soudés sur leur bord*). Among other forms we may note large bellied jars with ribbed shoulders and cooking pans. The designs are exclusively geometric. A discovery in a corresponding stratum at Tepe Djamshidi helps to date Giyan 3—an axe with a reinforced convex socket that occurs in Mesopotamia in the Royal cemetery of Ur. Further there is a 'Syro-Hittite' cylinder seal analogous to specimens contemporary with Samsu-una, a king of the first dynasty of Babylon. The authors suggest analogies in Anatolia, the Aegean and the Balkans: in particular the Aegean kernoi and the Cappadocian pointed based cups with their white slips. Approximate date 1800–2500 B.C.

4. Level 7.5–9.5 metres. Graves 102–119. The bottom of this stratum rests directly on the prehistoric occupation levels represented by the sherd stratum 5. Giyan 4 is distinguished by the presence of large jars painted with the 'oiseaux-peignes' design, a comb surmounted at each end by a bird's head. The bird designs are sometimes superimposed in three tiers. Note also the curious 'cart-wheel' or sun designs. In general the painted pottery of this period is related to the fabrics covered by the term 'Susa 2' which includes vases with designs in a violet black paint, a degeneration of the more finely executed ware of Susa 1. This stratum also contains a socketed axe which is an early Mesopotamian type and a cylinder seal engraved with a curious ritual scene on which the authors offer no comment. Approximate date 2500–3000 B.C.

5. Level 9–19.5 metres at which depth virgin soil occurs. Graves 120–122. The three graves in this stratum were pot-burials containing the bodies of infants. Traces of *pisé* walling were discovered, and at –13.5 metres there was a wall with rough stone foundations. In general the stratum consisted of a long series of occupation levels sharply to be distinguished from the top four strata, which were for the most part cemeteries. We must presume a certain lapse of time, though not necessarily a very long one, between Giyan 4–5. The numerous painted potsherds include a variety of wares. Animal designs were common: at the bottom they tended to be naturalistic and gradually became stylized. On the earliest ware at 18–19 metres designs are in black paint on a *chamois* slip and include the Maltese Square and a strange pattern consisting of built-up lozenges with digitations, paralleled on other Iranian sites and variously interpreted as a stylized bird, a moufflon or the human figure. The authors suggest analogies with Anau 1: the same repertoire of designs is also found at Al 'Ubaid and on T. Halaf ware. The use of a slip and certain of the geometric

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designs (*e.g.* pl. 40 no. 1) can be matched by some of the earlier T. Halaf fabrics and suggest to me that the potters of prehistoric Assyria and west Iran were in touch with one another. After 18 metres this type of slip ware disappears and from that level to the 9 metre mark we find a homogeneous series of typically Iranian fabrics. At 16 metres the earliest goat and bird designs occur, at 12 metres the earliest stylized bird designs in metopes, and at 12.6 m. there is a beaker covered with a wash of lustrous black paint and a zigzag design left as a reserve, absolutely identical in technique with some of the Susa 1 pottery. At 11.25 m. a running ibex design is executed in a manner very reminiscent of the Susa 1 dogs; at 10 m. there are leopards similar to specimens from Sialk. Finally at 9 m. there are rows of birds executed precisely in the manner of Susa 1. I would also draw special attention to the chalice illustrated on pl. xv, no. 4, found at 7.5 m., at the very top of the stratum and apparently very similar to the so-called Ninevite 5 or Billa ware; its context suggests that it belongs to the turn of Giyan 4-5 exactly where we should expect to find it. The most important evidence supplied by Giyan 5 is the appearance of Susa 1 fabrics late in the chalcolithic stratum, for it settles once and for all the approximate position in our time series of the much debated Susa 1 pottery. The earliest specimen of copper occurs at a depth of 13 m., below the Susa 1 material.

For the earliest pottery of west Iran therefore the Giyan material gives us the following sequence:—

(a) The earliest phase represented by a ware known in Elam as Susa 1 *bis* and its Mesopotamian equivalent, Al 'Ubaid ware.

(b) Uruk ware. This stage of development which occurs at Susa is not found at Giyan; but a single lugged vase in a reddish clay found at 9 metres may belong to this gap.

(c) Susa 2. One phase of that ceramic is represented by the pottery of Giyan 4 with its 'oiseaux-peignes' designs. Giyan 4 shows clearly enough that the long development of painting covered by the term Susa 2 is a natural outcome of Susa 1. A few polychrome sherds in black, red and white paint found in the middle of Giyan 4 appear to be analogous to material from Moussian and may be an imitation of Jamdat Nasr ware.

We may offer a few suggestions on certain points. The bowl shown on pl. ix, no. 3 with cross hatched running lozenges can be exactly matched by T. Halaf specimens and no. 4 of the same plate is analogous to Samarra ware—perhaps a late phase of it. Here therefore we have further indications that the early half of Giyan 5 overlaps with T. Halaf. In Giyan 3 the remarkable vases with cups round the rim, 'vases a godets', can be traced elsewhere at an earlier stage: one from Abydos said by Petrie to be just pre-Menes, decorated with animal designs in red, was clearly an import from Iran; a second vase was

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discovered by Speiser in Gawra 6 c. 3000-2700 B.C. ; the celebrated 'Fountain-head pot'. It looks therefore as if we shall eventually discover some site which will give us the ancestry of the distinctive Giyan 3 pottery.

The turn of Giyan 1-2 must I think be approximately contemporary with the last phase of Chagar Bazar where we find pottery with simple geometric designs on vase shapes that can be paralleled at Giyan, and this implies that the late phase of Hammam and related sites is also to be connected with this stage at Giyan. On pl. 35 there is an illustration of a receptacle discovered in Giyan 3 : it consists of a strip of perforated bronze sheeting folded over to make a cornet 5.5 cms. high. The purpose of this object is now clear, for at Chagar Bazar similar specimens were found inside wine (?) jars and were fixed to the ends of hollowed reed syphons. The practice is also illustrated at Tell el Amarna in Egypt and the Giyan specimen seems to be the earliest example of a drinker's outfit which may have been introduced from Iran by way of Syria into Palestine and Egypt.

The approximate correctness of the sequence dating at Giyan was elucidated and confirmed by soundings made by M. Ghirshman at Djamshidi and Bad-Hora. On the former site stone cist-graves with an annexe gave further links with the Caucasus.

In an interesting note on the skulls M. Vallois says that there are no grounds for the suggestion that Iran was the cradle of the tall fair dolichocephalic peoples of northern Europe.

In conclusion it is no exaggeration to say that by their work at Giyan Dr Contenau and M. Ghirshman have between them placed the archaeology of West Iran on a scientific basis. The dating of the material from Giyan serves as a groundwork for future construction. Doubtless modifications may eventually be made and greater precision will surely be attained by future excavations ; but the authors of this work will be entitled to the credit of setting all subsequent research on a sure foundation.

M. E. L. MALLOWAN.

KLEINFUNDE AUS DEN ARCHÄISCHEN TEMPELSCHICHTEN IN URUK. By ERNST HEINRICH. (Ausgrabung der Deutschen Forschungsgemeinschaft in Uruk-Warka, Band 1), *Berlin*, 1936. pp. 54, 38 pls.

The Germans' eight seasons of digging at Erech had yielded data of unique importance for the establishment of culture-sequences, for the history of architecture, writing, economics and science in ancient Mesopotamia. Till the sixth campaign they had not produced museum pieces comparable to those obtained by British and American expeditions from Ur, Kish, Tell Asmar and Khafaje. In 1933-4 the excavators were rewarded by uncovering a regular hoard of temple treasures in a layer satisfactorily sealed under the oldest foundations of the Early

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Dynastic period. It is the objects then collected (with a few comparative specimens) that are magnificently illustrated and described here. One or two additions to the group that came to light in the next season are mentioned here but illustrated only in the *7te vorläufige Bericht* (*Abhandl. preuss. Akad., phil-hist. Kl.*, 1935, no. 4—issued 1936).

From the character of the find and its position it may be inferred that the component objects had been consecrated to temple use and hence conserved within the sacred precincts even when they had become obsolete. Stratigraphy as well as the style of seals and the shapes of beads and vases proves that the hoard belongs to the last 'prehistoric' period in Sumer, the Jemdet Nasr phase. Dr Frankfort's latest report on Khafaje (*Oriental Institute Communications*, no. 20) provides confirmation, since he found pendants, precisely like those from the hoard, in Sin Temple VI, securely dated to Jemdet Nasr times. But the hoard from Erech here published gives the clearest and fullest information yet available as to the artistic and technical capacity and the scientific and economic equipment of Mesopotamian peoples in that period.

The hoard includes a great 'alabaster' vase, over a metre high, adorned with three tiers of bas-reliefs depicting a cult scene, servants with offerings and a flock (illustrated with two photographs of the original, three of a cast and a sketched development), five stone libation-vases with side spouts, one decorated with animals in full relief, the others with inlays on bitumen; a shapely silver ewer; fifty pendants (2 to 6 cm. long) in the form of sheep, calves, and other beasts, very faithfully modelled in stone, shell or metal; three larger carvings of sheep that had served as supports for some object, like the Early Dynastic toad from Kish that supports a candlestick; nine cylinder seals; a variety of beads and a mass of miscellaneous fragments. The bas-reliefs and the little animal figures are very perfectly executed. The representations of animals in particular are so true to life that Hilzheimer can recognize the precise species depicted. Some of the cylinders depicting cult-scenes are also very lively though less naturalistic than the glyptic of the preceding Uruk epoch. From the cult-scene on the big vase we can infer the existence of full-size statues of rams and anthropomorphic statuettes about half-size or at least on the scale of the Early Dynastic idols from Tell Asmar.

The metal worker employed copper, gold and silver. To facilitate the casting of the fine lion amulet on plate 13 he had added some 9% of lead to the copper (which contains nickel as an impurity as usual in Sumer, but no tin). The narrow-necked side-spouted jars were usually made in four pieces; the bodies were turned in two halves to fit exactly and stuck together with bitumen, sometimes supplemented with copper rivets; necks and spouts, fashioned separately, were fitted into prepared holes and again cemented with bitumen. The joint

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was masked by a mother-of-pearl inlay on the bitumen. However, the body of one such vase in 'hard grey stone' and of the carved example seem to have been made in one piece—a difficult feat about which more details might have been given. The shapes are familiar from Jemdet Nasr ceramics; the moulded and undercut rims illustrate the lithic origin of this device in the pottery copies. European archaeologists will be interested by the use of 'v-perforation' in making attachments for heavy inlays. Pendant w 14819n is a miniature polished stone axe-head, but, unlike European axe-amulets, the perforation is close to the blade.

Lapis lazuli was already being imported and used for seals and other objects. There was even a vase made either of lapis or of a 'synthetic lapis' of coloured clay which would be still more exciting; an analysis of the fragment is to be desired. In any case lapis was common enough to prove frequent intercourse with the Iranian plateau. A few beads were made of green feldspar or Amazonite which may have been brought from still further afield. Hilzheimer's appendix on the animals is a valuable contribution to Mesopotamian economics. The most striking point is the recognition of tame hairy sheep as well as woolly and wild species. The hairy sheep (Hilzheimer terms them *Hausmähnenschafe* to distinguish them from the 'Barbary sheep' which Germans call *Mähnenschafe* and which are not really sheep at all) have long been familiar from Egypt, but in Mesopotamia are represented only on documents of the Jemdet Nasr period. Particularly intimate connexions with Egypt about that time are indicated by the astounding similarity between a basalt stele found at Erech in 1932-3 and the Late Predynastic knife-handle from Jebel-el-Arak. Like the subject depicted on the knife-handle, the hairy sheep are of course Asiatic.\*

The plates it may be noted are quite exceptionally clear, but the vase, showing an architectural subject on plate 25, is topsyturvy. The book is as essential for those interested in the origins of domestic animals as to students of Oriental history, art and religion.

V. G. CHILDE.

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\* See Dr Hilzheimer's article in *ANTIQUITY*, June 1936, p. 195.

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